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AEROTHERMODYNAMICS OF A JET ENGINE TEST CELL FACILITY

by

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Aerothermodynamics of a Jet Engine Test Cell

by

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I. INTRODUCTION

New and overhauled aircraft gas turbine engines undergo stringent performance testing before returning to operational use. To allow for safe and effective monitoring of the engine and aircraft, gas turbine Test Cell and Hush House facilities are utilized to perform monitoring of key temperatures, turbine speeds and flow rates associated with the engine. The test facility additionally provides distortion-free air flow to the engine inlet (eliminating rain and wind effects), for lower exhaust temperatures exiting from the facility and reduced noise pollution to the surrounding area. Furthermore, these facilities allow for final engine "trim" settings to ensure that maximum power is available.

Currently the test facilities designed and built for the Navy vary widely. The various facilities include:

1. The Run-up pad--where a tied down aircraft conducts power checks in an open air environment.

2. Sound suppressor--located at the Run-up pad to reduce noise.

3. Open Test Stand (OTS)--located outdoors that supports an aircraft engine and has portable instrumentation attached.

4. Hush House--a totally enclosed facility allowing around the clock testing of aircraft.

5. Test Cell (TC)--an enclosed facility allowing testing of various engine sizes out of the airframe.

Design engineers have used experience and common sense to build these facilities with varying degrees of success. Aerothermal monitoring supplements the design of the structures.

With the tremendous technological advances made in recent years, much higher temperatures and thrusts are available compared to similar size and weight engines of just a few years ago. Considering that nearly 67% of the Navy Test Cells and Hush Houses are at least 25 years old it is evident that a new generation of standardized facilities meeting federal, state and local noise, pollution, security and safety standards is required. [Ref.1:p.3]

The Navy Environmental Health Center cited total claims against the government in 1981 at $114 million due to physical injury, hearing, or respiratory damage to military and civilian personnel. Additionally, the 1981 ruling by the federal court system that military gas turbine test facilities must comply with Section 233 of the Clean Air Act accelerated the need for modern test facilities meeting the above requirements plus those projected for the future. [Ref.1:p.3]

The goal of the Navy is to provide for standardized aircraft and engine test facilities that meet both safety and environmental concerns while providing the latest technology to monitor the engines. To accomplish this, complete

development of test facilities with reliable operation and maintenance throughout the facility life cycle is necessary. [Ref.1:p.1]

When contemplating the inherent design criteria for the new facilities, problems such as: turbulence, non-concentric flow patterns, multiple jet engine aircraft (including varying temperature and thrust arrangements), supersonic velocities, extreme temperature and pressure gradients, and awkward geometries must be appraised. [Ref.5]

Enigmas associated with the design of the structure may not be obvious. Complete information dealing with the aerothermal properties is a must in basing decisions on new multi-million dollar expenditures. Therefore, to minimize the possibility of an erroneous design, the PHOENICS Code is employed first on documented Test Cell and Hush House structures having actual field test data. After verifying the accuracy of PHOENICS with the test data, the Code eventually could be used at a Navy installation (such as the Naval Civil Engineering Laboratory) to design future test facilities providing accurate modeling data.

In this instance, the performance of a Navy J-79-GE-8 gas turbine engine located at Naval Air Station Jacksonville, Florida Hush House facility is investigated. The data is used to determine the behavior of the existing structure and will

be employed to assist engineers in the research and development (R&D) phase of the facility design project.

II. PROBLEM FORMULATION

A. HUSH HOUSE CHARACTERIZATION

The Hush House under investigation is an "Air Force" type located at Naval Air Station Jacksonville, Florida. In 1980 the Air Force purchased 25 and later 54 demountable Hush Houses with Test Cell capability. This standardization accompanied with such a large scale purchase and the flexibility of aircraft or engine test capabilities allowed for a cost effective combined design. Because of the large scale purchase the cost per Hush House was a relatively low $2.2 million. The only major modification performed by the Navy to the Air Force design was inclusion of an additional AFFF fire fighting system. The Hush House design does not address air pollution standards. Some type of air pollution abatement system will undoubtably be required in newer designs. [Ref.1:p6]

The general dimensions of the Hush House is 28.7 meters (94 feet) wide by 25.5 meters (83.7 feet) long with the oval shaped "augmenter tube" extending an additional 31.3 meters (103 feet) from the rear of the Hush House (See Figures 2.1 and 2.2). The aircraft is placed so that the engine exhaust is approximately 4.6 meters (15 feet) from the augmenter tube entrance. The most common construction material for the

structure is steel. The design is geometrically simple allowing for mass production. The air flow in the last two inlets nearest the augmenter tube provides both engine intake and cooling air for the surrounding engine area. The final 7 meters (23 feet) of augmenter tube is angled at approximately 45 degrees running from the floor upward to provide for a smoother directional transition of gases. Acoustic damping materials line the augmenter tube, inlets and aircraft bay walls to reduce exhaust noise.

The Hush House is used in support of the Naval Air Rework Facility (NARF) located at the Naval Air Station. Although the Hush House is presently utilized for engines fully mounted in an airframe, it is anticipated that engine "Test Cell" testing (where an engine is mounted on a test stand) will be approved in the future. The facility is normally in operation from 0700 to 2400 Monday through Friday with an average of 1 to 5 aircraft being tested per day. One of the most common aircraft tested is the F/A-18 Hornet powered by two General Electric F-404 gas turbine engines. Typically, after completion of overhaul of the aircraft and engines, the aircraft will be towed to the facility and backed into the Hush House. The hugh aircraft inlet doors to the facility will then be closed to provide an enclosed area free of foreign matter, outside wind, rain, and other environmental and personnel concerns.

With the aircraft fully enclosed and securely tied down, a normal crew of three mechanics will perform final engine "trim". One person is located in the Hush House Control Booth to ensure manning of the fire fighting systems. The second will physically adjust the fuel control mechanism on the engine via radio signals received from the cockpit where the third crewman is. The engines are controlled during testing by the third crewman in the aircraft who is additionally responsible for monitoring the various fuel, oil, % power, hydraulics, and other gauges. Testing normally lasts for a period of two hours. Only one engine is tested at a time with the other normally at idle. Air intake and cooling is provided by five inlet areas located on either side of the Hush House (See Figures 3.2 and 3.3). Wire screening, air diffuser and noise abatement equipment is present at the inlets. Installed fire fighting and wash-down equipment is present in the aircraft bay area with the air inlets capable of being automatically closed.

B. ISSUES CONCERNING THE HUSH HOUSE

The Hush House is currently performing as designed with the below exceptions. Investigation indicates some cracking of the welds which fuse together the stainless steel "corrugated" sheet metal overlaying the sound absorption material located in the augmenter tube. Also, actuation of

heat sensors in the overhead of the aircraft bay sometimes occurs when the engines are idled for a period of time. Apparently some of the exhaust gases travel upward when low mass flow rates are present instead of going down the 31 plus meters (103 feet) of augmenter tube.

In general, personnel at the Naval Air Station were pleased with the overall operation of the Hush House. Although vibration of the entire physical structure has been noted in this facility as in other designs, it does not appear to cause any structural problems such as the requirement for inspection and retightening of bolts as occurs in other Navy Hush House designs.

Physical test data is available for an identical Air Force facility for the F-4 Phantom II and is included in parts of this report for comparison with results from the PHOENICS Code. The test data provides an important comparison for this thesis to verify the computer model. [Ref.2]

A physical inspection of an identical Hush House to Naval Air Station Jacksonville's was under-taken in June 1988 at Dobbins Air Force Base in Atlanta Georgia. Discussions with the various Air Force personnel corroborated the previously mentioned problems with the exception of the heat sensor activation problem. The Dobbins Air Force Base Hush House was

utilized for both Test Cell and Hush House operations involving the F-15 (EAGLE) fighter.

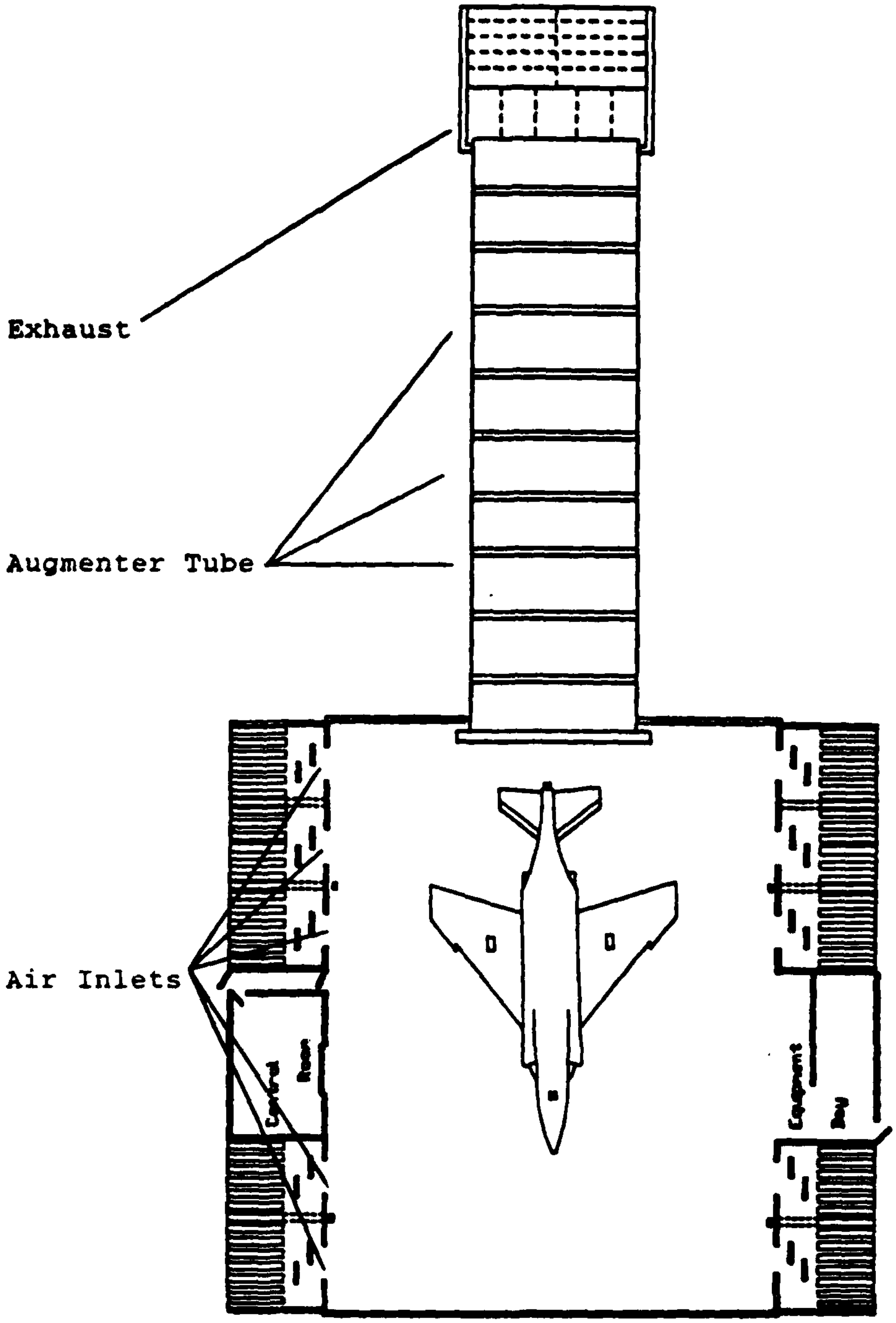

Figure 2.1 Actual Hush House (Top View Looking Down)

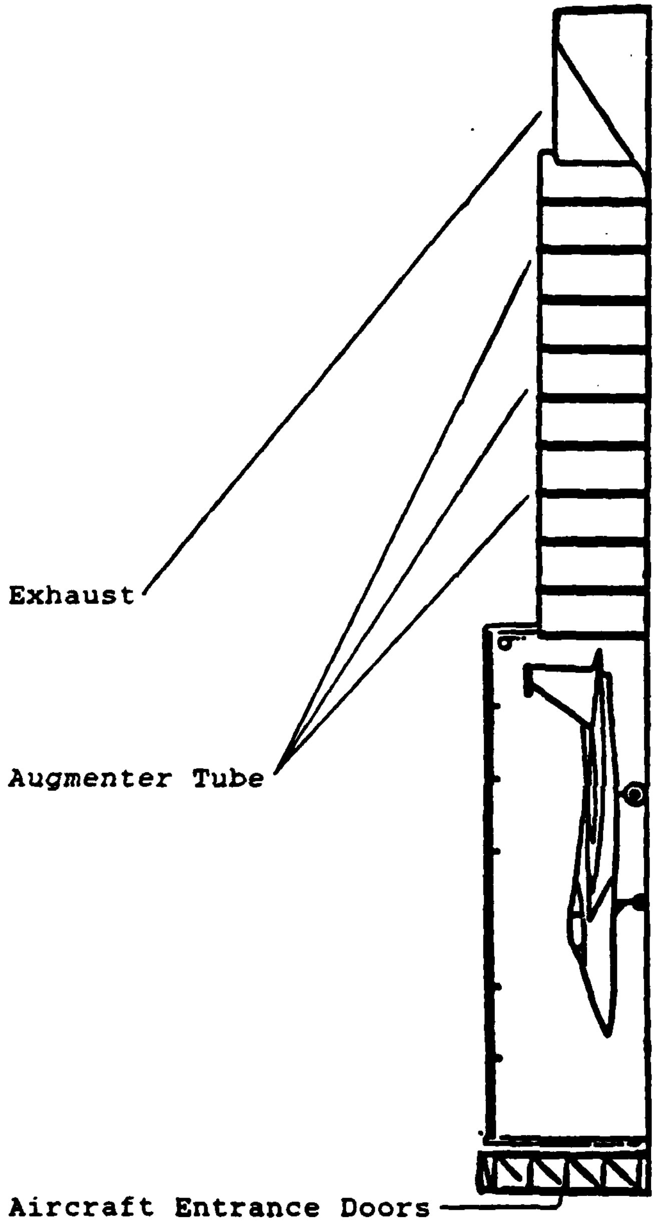

Figure 2.2 Actual Hush House (Side View)

III. THE PHOENICS CODE

A. AN EXPLANATION

PHOENICS, which stands for "Parabolic Hyperbolic Or Elliptic Numerical Integration Code Series", is a computer code capable of simulating fluid flow (including changes of state), heat transfer and chemical reactions. The code is copyrighted by CHAM (Concentration Heat and Momentum) Limited which was founded by D. Brian Spalding in 1972. [Ref.3:p.1.1]

As shown in Figure 3.1, the PHOENICS Code is structured into three major components consisting of "EARTH", "SATELLITE", and "GROUND STATION". The "EARTH" program may be considered as a "black box" which contains the computational procedures for all applications. The "SATELLITE" program consists of several data-input methods which define the boundaries and scope of the problem. Finally, the "GROUND STATION" program has various subroutines containing built-in physical models which may or may not be selected depending on the program application.

By default "EARTH" can solve for up to 25 dependent variables. In the Hush House application these include pressure, all three dimensional velocity components, enthalpy (temperature), turbulent kinetic energy, and the

turbulent kinetic energy dissipation rate. The dependent variables can be enlarged if desired.

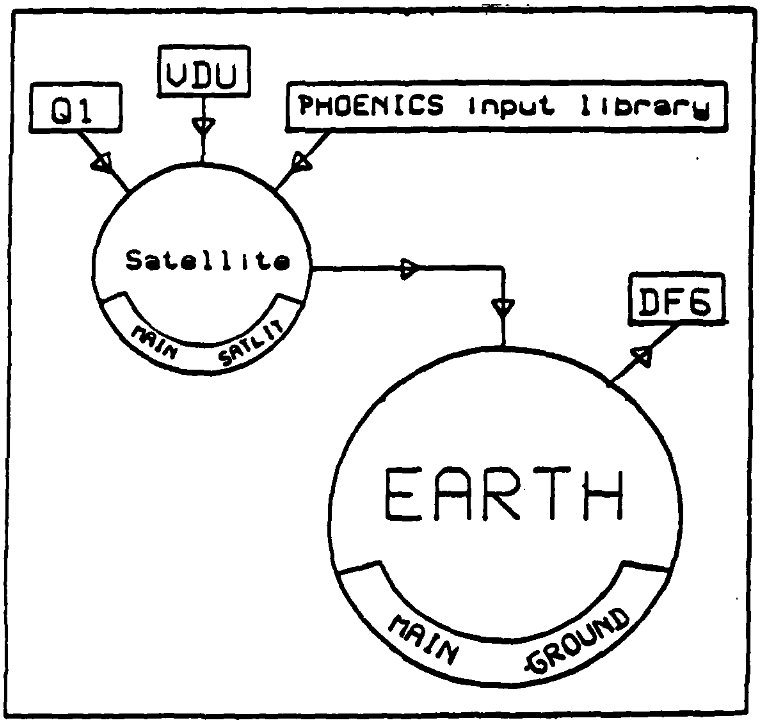

Figure 3.1 Satellite, Earth and Ground

The PHOENICS Code is exceptionally flexible allowing for varying sizes and scales of structures from "micro" to "macro". A "final" solution is highly dependent on the accuracy required by the user as well as the grid sizing used. The higher the accuracy and/or number of "cells" desired, the greater the computational effort required for a solution. In

this investigation, a "grid independent solution", where a sequence of "finer" grids would be used, was not possible due to time limitations.

In order to solve a given problem the user must create a "Q1" file. The "Q1" file describes all aspects of the system being investigated. This file is partitioned into several groups allowing the user to specify various aspects of the physical system. Examples are structure size and shape. Additionally, other groups are capable of providing the necessary grid spacing, boundary conditions, engine mass flow rate, engine exhaust temperature and printing options. The "Q1" file is read by the "SATELLITE" program which is recognized and processed by "EARTH". The "EARTH" program solves discretized conservation equations. A typical conservation equation (before discretization) which "EARTH" solves can be expressed in the form:

$$\frac{\delta}{\delta t}(r\rho\Phi) + \mathrm{div}(r\rho V\Phi - r\Gamma_{\Phi}\ \mathrm{grad}\ \Phi) = rS_{\Phi}$$

where:

r = phase volume fraction

Φ = dependent variable

Γ_{Φ} = exchange coefficient (laminar or turbulent)

S_{Φ} = source or sink term

$p \equiv$ density

$V \equiv$ velocity vector

Here Φ is the dependent variable currently in question. For example, using the conservation of energy equation, Φ would be enthalpy and Γ_Φ is the diffusion constant. [Ref.3:p.2.4]

The values computed and displayed for each cell are the solutions of the algebraic equations relevant to the laws of physics for that cell. The laws of physics are those of conservation of mass, energy and momentum and any other dependent variable. The general form of the algebraic linearized equations resulting from a discretization of the previous field equation is:

$$\Phi_P = \frac{a_E\Phi_E + a_W\Phi_W + a_N\Phi_N + a_S\Phi_S + a_H\Phi_H + a_L\Phi_L + a_T\Phi_T + S}{a_E + a_W + a_N + a_S + a_H + a_L + a_T + a_P}$$

where Φ_P is the value of the dependent variable at a particular cell and subscripts E, W, N, S, H and L are neighboring locations. The values of Φ at these locations are known from a previous iteration. Quantities S and a_P express the influence of a source of the entity Φ. The a's are influence coefficients, temporarily treated as constants, with

the above subscripts expressing interaction between neighbor cells. [Ref.3:p.2.4]

Solving the multitude of algebraic equations is complicated and time consuming. An iterative manner is used until the imbalance between the left and right sides of all the above equations are negligible. Several schemes can be used to perform the "sweeps" (where a sweep solves for the dependent variables for each cell in the grid one time) necessary for the iteration process. The results will be identical although the time to complete the task will vary with the iteration scheme. [Ref.3:p.2.5]

There are several ways to determine whether the problem has "converged" to a solution. Results are monitored to determine whether values of dependent variables are remaining constant or fluctuating. The "error" (residuals) is tabulated for each sweep at the end of the computer printout. By observing "residuals" from each sweep a pattern of decreasing ("converging") values should be present. If the "residuals" are increasing ("diverging") adjustments of several constants which in-turn apply a dampening effect upon the variables in question may be required. The printout of successive residual values demonstrate convergence by a reduction in the residuals. That is, a visually downward sloping line on the accompanying graph of residuals shows convergence.

Conservation balances on each dependent variable can be verified using "net source" values which are tabulated at the end of each run. The mass flow rate (mass flow rate = density * area * velocity) is additionally calculated, in this instance, for the five inlets and one outlet confirming that no hidden, missing, or improper boundaries are present. The problem has "converged" when an acceptable level of error remains.

Successful "convergence" of the PHOENICS program is dependent upon experience and an understanding of the results. If the residuals of a dependent variable show divergence, the user can manipulate the rate of change of values of that variable by using the RELAX command to return the variable back to the convergence path. Relaxation is placed on a variable to control the variables maximum change from each sweep. This minimizes the possibility of "over-correction" or "blowing up" of the values. Smaller values of relaxation result in smaller value differences per iteration. However, excessively small relaxation values require additional computer time. A balance gained by user experience enables optimal convergence with minimal computer time.

When multiple runs are required for large programs output data is stored in a "DF09" file which allows the next run to resume the computations (i.e., a restart) where they last

ended. The complexity of the problem and the required accuracy determine the quantity of computer runs needed. The number of runs can vary from the tens to the thousands and higher.

B. ASSUMPTIONS IN THE MODEL

There are several approximations that deserve mention in the modeling of the Naval Air Station, Jacksonville, Florida Hush House. Because the geometry of the model uses cartesian coordinates, the actual Hush House's rounded and curved surfaces, including the augmenter tube, Hush House overhead, engine and exhaust gas exit ramp, were approximated as flat stepped surfaces.

The inlet "muffler" arrangement has been eliminated for simplification. The corrugated metal found throughout the structure to cover the sound absorption material was considered to have a friction surface. The model, therefore, included friction for all walls, floors, etc.

The actual test data used for comparison between the model and facility contain several notable differences. The model uses the symmetry of the centerline of the Hush House to reduce the number of cells by half. The engine is located on the centerline in an ideal cradle position. Because of the symmetry only half of the engine is observed as if the Hush House was being used as a test cell without the aircraft

present. Since the correct engine exhaust area is used the units of mass flow rate and temperature are correct for the model configuration. The engine is configured for afterburner operation. The physical aircraft is not present.

Actual test data used for comparison consists of the entire aircraft being placed in the facility. The engine configuration has both engines running with one at afterburner while the other engine is at "engine idle". The obvious result of the engine arrangement is a non-symmetrical engine location in comparison to the symmetric model.

C. MODELING THE PROBLEM

Data, including blueprints of the Hush House and aircraft engine information, was gathered to accurately depict the facility configuration. The information obtained was in English units and was converted to the International Metric System or "S.I." using standard conversion factors.

With the appropriate information gathered it was time to "fit" the Hush House to the cartesian coordinate system of X, Y and Z coordinates using PHOENICS version 1.3. The cartesian coordinate system was choosen because of its simplicity. Since the actual structure does have rounded surfaces some approximations were made specifically to the augmenter tube and overhead of the inlet bay. Additionally, the aircraft was eliminated to reduce the complexity of the problem allowing

the structure to serve in its "Test Cell" configuration. Drawings are found in Figures 3.2 and 3.3 of this section illustrating the key items found in the structure. The drawings view through the structure to note the key items, such as: air inlets, augmenter tube and engine locations. Additionally, the structure walls were considered to be of infinitesimal thickness to further simplify the grid structure. The engine was simplified from a cylindrical shape to one of a rectangle of equal intake and exhaust area as the original cylinder. Other small items, such as the engine stand, were eliminated.

To take advantage of the symmetry of the Hush House and thereby reduce computer CPU time, only half of the Hush House, engine and augmenter tube were modelled in the "Q1" file. This was easily accomplished by dividing the structure at the centerline. This also appreciably reduces the size of the "Q1" file.

Figures 3.2 and 3.3 graphically display the X-Z and the Y-Z planes of the structure. Intuition, trial-and-error, and available computer time dictated the grid spacing used. Obviously, volume areas of interest such as the engine exhaust and augmenter required smaller cell size.

The "Q1" file describes the structure using several types of statements. The "CONPOR" statement allows the user to

define walls, overheads and the floor. The "PATCH" and "COVAL" statements work together to indicate items such as an engine exhaust or atmospheric boundaries. Dependent variable values for say the atmospheric boundaries can be "fixed" or allowed to "float" depending on the problem definition. When the walls, inlet bay overhead, augmenter tube, engine and floor dimensions have been measured, a grid for the system can be constructed, based on locations and anticipated responses over different "areas" of the system. Areas of anticipated large response gradients would have smaller cell volumes than low activity areas.

Note that in figure 3.2 the Z-axis consists of 40 cells consecutively numbered from 1 to 40 going left to right. The X-axis consists of 10 cells consecutively numbered 1 through 10 going from lower to upper. Figure 3.3 is similarly numbered where the Y-axis runs from 1 to 12 going from lower to upper and the Z-axis is the same as previously described.

In addition to describing the geometric structure and prescribing the "RELAXATION" devices, the properties of the fluid medium must be specified. The following boundary conditions were used:

1. ambient temperature = 295 K
2. ambient pressure = 101325 Pa
3. gas constant = 286 Joules/(kg - K)

4. Cp = 1004 Watt-sec/(kg - K)

5. mass flow rate (engine) = 197.72 kg/(sec-sq meters)

6. temperature (engine out) = 1944 K

Additionally, "friction" was applied to all surfaces of the Hush House. Appendix A contains the final form of the Q1 file for reference. An in-depth explanation of all the "Q1" program parameters can be found in the "Beginners Guide and Reference Manual" (See Reference 4).

Several methods and theories have been previously used to attempt to reach a "converged" solution in other test facilities. The method chosen for this project was to initially minimize the "excitation" of the model thereby reducing the "jump" required in solving the momentum, enthalpy, turbulent kinetic energy dissipation rate, turbulent kinetic energy and mass equations. To accomplish this, during successive runs (where a "run" consists of several "sweeps"), small incremental increases to the source were applied, i.e., jet engine exhaust temperature and mass flow rate were slowly increased, from run to run, while carefully monitoring the residuals as well as the mass flow rate in and out of the structure. The turbulence model, "KEMODL", was used throughout rather than considering the flow first as laminar and then adding turbulence. This method appears to have met with considerable success. The table that follows illustrates the iterative process used throughout the computer modeling:

Table 3.1 ITERATIVE PROCESS

Temperature	Flow Rate	Sweeps
400	10	600
500	25	600
750	25	600
750	50	600
1000	75	2500
1250	75	1200
1250	100	1200
1250	125	1200
1500	125	1200
1750	125	2000
1750	150	2000
1944	150	2000
1944	175	5000
1944	197.72	5500
	Total Sweeps = 26,200	

This amounts to approximately 147 hours of computer CPU time on the IBM 3033 mainframe computer installed at NPS.

Using the MVS "batch" system on the IBM 3033 mainframe proved to be time consuming. The PHOENICS Code is designed to work both interactively and in batch mode. Due to the high computer usage at NPS the "interactive" mode was not available. Limited to the batch mode, careful planning for evening or night runs was required to maximize CPU time. The number of "Degrees of Freedom" (DOF) that must be solved for gives an idea of the problem complexity. DOF = NX * NY * NZ * the 7 dependent variables. Solving this for the grid size

of 10 * 12 * 41 yields nearly 35,000 values calculated per each sweep. Typically, 150 to 200 sweeps could be accomplished during the day using four 15 minute (class "G") runs of 50 sweeps each. After normal working hours three one hour (class "J") runs totalling 500 to 600 sweeps were accomplished. Data stored on the all important DF09 file was continuously "backed-up" after a successful run to prevent loss of data if an improper subsequent run resulted in erroneous data. The backed-up data could then be restored to the DF09 file to enable continuation of the runs without starting at the very beginning.

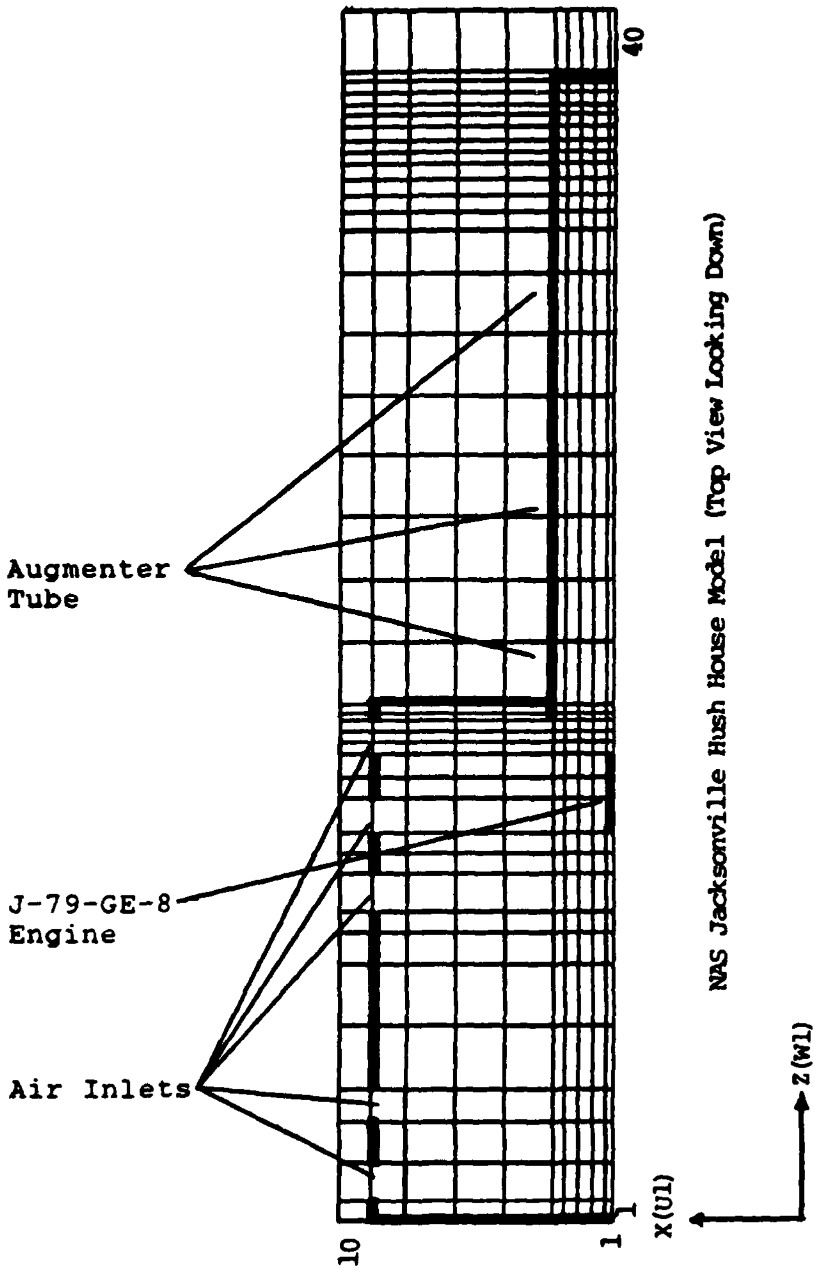

Figure 3.2 Hush House Model (X-Z plane)

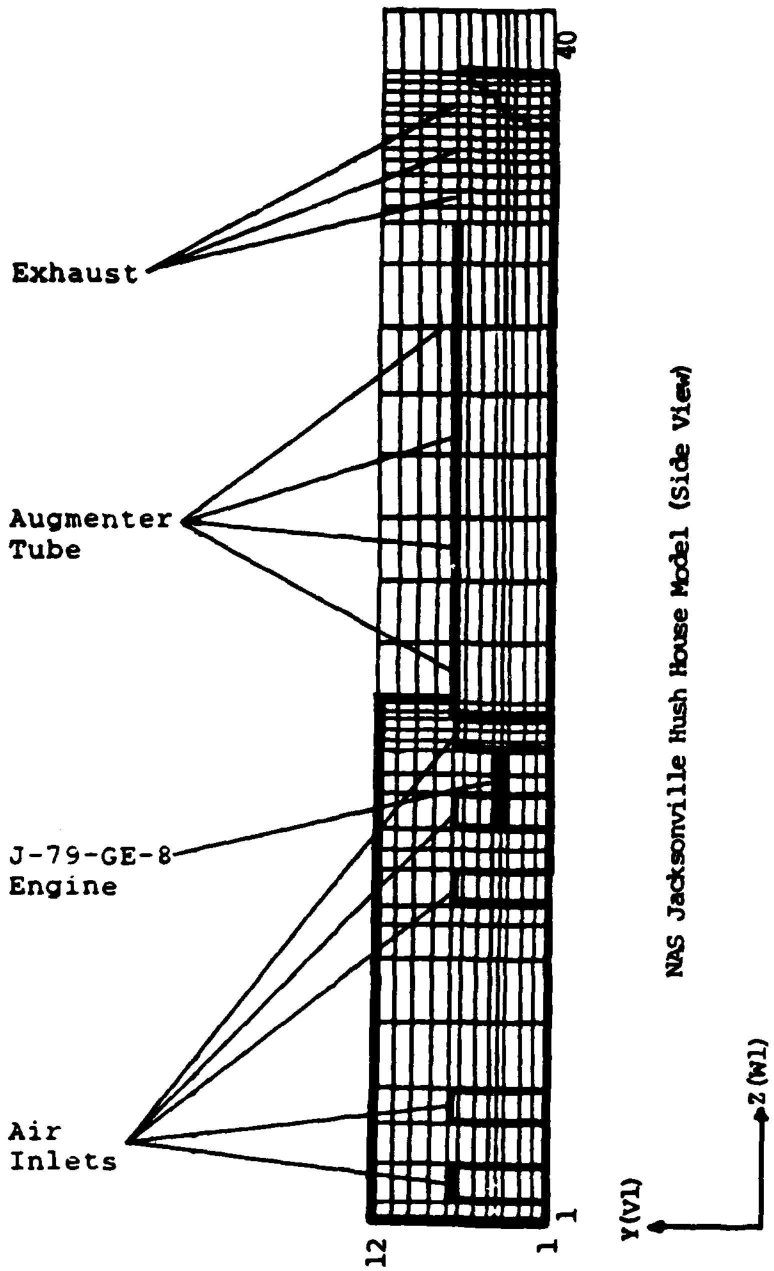

Figure 3.3 Hush House Model (Y-Z plane)

IV. RESULTS

A. THE FINAL SOLUTION

After obtaining the "solution" for the problem the question still remaining is just how "good" are the computer model results? Some of the "tools" available for use, such as checks on residual values and mass flow rate calculations, were discussed in Chapter III. The checks indicate that a converged solution is obtained, but, still do not prove the computer model data validity with the actual facility data.

Using actual (experimental field measurements) results from Reference 2 allows for an accurate evaluation of the computer model. Appendices "C" and "D" offer some experimental data for velocities and temperatures, thereby indicating mass flow rate and augmentation ratio. Additionally, figures 4.1, 4.2 and 4.3 found in this section give the numerical (computer) model results of differential pressure, temperature and axial velocity profiles encountered at the IX=1 slab. Graphics generated pictures (generated by "PHOTON" which converts the computer generated results to graphical format) allow for the interpretation and digestion of the nearly 300 pages of numerical output of a PHOENICS run. A condensed output is found in Appendix "B". In this case, PHOTON graphics specifically provides graphical information for a better

interpretation of velocity fields and both pressure and temperature profiles and contours enabling a better understanding of computer generated data. Use of all these additional "tools" allow for a determination as to whether the computer results are valid.

Observing figures 4.4 and 4.5 (top looking down) show the flow pattern of the air entering the five air inlets into the Hush House at IY=4 (engine level). A "typical" low velocity air flow region (Figure 4.4), illustrated by the minuscule length of the velocity arrows (velocities of less than 2 meters/sec or 6.5 feet/sec), is noted between the first two and final three inlets. Figures 4.6, 4.7 and 4.8 illustrate the side view velocity flow patterns for the overall facility, engine area, and exhaust to atmosphere respectively. Note the ever reducing velocity magnitudes which vary from 818 meters per second (2684 feet/sec) at the engine exhaust to less than 100 meters per second (328 feet/sec) as the gases travel further away from the engine and down the augmenter tube until reaching the exhaust.

Figures 4.4, 4.5 and 4.9 (top looking down) show the air and gas flow patterns entering and exiting the engine region and augmenter tube at engine level. Figure 4.10 indicates the flow patterns at the top of the augmenter tube (IY=8) for the entire Hush House. Of interest is the counter-flowing currents

at the top of the augmenter tube starting at the engine exhaust and running to nearly half way down the augmenter tube itself.

The engine occupies cells defined by IX=1, IY=4 to 5 and IZ=12 to 14. As anticipated, figures 4.4, 4.9 and 4.11 show that at engine level the air in the Hush House moves toward the engine inlet from the surrounding area while air also is entrained at the exhaust of the engine. Figure 4.1 illustrates this entrained "effect" noted by the high differential pressure of the exhaust gases immediately exiting the engine at IX=1 and IY=4. Less than a meter after exiting the engine exhaust, the exhaust gases and inlet air have begun mixing which results in an area of drastic temperature reduction for the exhaust gases in the Hush House and immediate augmenter area. Gradually, as the gases pass further downstream, pressure begins rising which reduces the velocity of the gases in the augmenter tube until the gases exit to the atmosphere. At the inlet area to the engine (at Z=18 meters on figure 4.1) a low pressure area is noted as one would also anticipate as the air is drawn into the engine inlet.

The exhaust gases exit the engine at 1944 Kelvin (3040 F). The inlet air and exhaust gases mix due to the entrainment "effect" causing a distinct drop (See figure 4.2) in temperature as the gases travel further down the augmenter

tube. Temperature contours at the IX=1 slab shown in figures 4.12 and 4.13 portray the temperature patterns out of the engine progressing down and out of the augmenter tube. Analogous temperature contours at the IX=3 slab are presented in figures 4.14 and 4.15. Figures 4.16, 4.17 and 4.18 embody the temperature contours at the IY=5 (engine) level while figure 4.19 shows the temperatures at the top of the augmenter tube at IY=8. The temperature contours indicate a progressively widening area of decreasing exhaust gas temperatures where the vast majority of the temperature drop occurs in the first five meters after the engine exhaust (the temperature differential goes from 1944 K to 800 K).

Differential pressure contours of the engine exhaust at IX=1 are shown in figures 4.20 (IZ= 14 to 24) and 4.21 (IZ= 25 to 40). As indicated in the pressure profile, the exhaust jumps to nearly 6000 pascals above ambient upon exiting the engine, but soon after drops into a low pressure region until reaching ambient pressure half way down the augmenter tube at IZ=24. Gradually, the pressure builds until the gases exhaust to the atmosphere. Similar contours for the IX=3 slab are included in figures 4.22 and 4.23. Pressure contours for the X-Z planes at IY=5 (engine level) and IY=8 (top of the augmenter tube) are contained in figures 4.24, 4.25 and 4.26. Of noted interest is how the differential pressures remain

fairly uniform at a given IZ location as the gases travel down the augmenter tube with the exception of the region initially downstream from the engine exhaust.

B. ACTUAL VERSUS MODEL COMPARISONS

Generally, the results from the computer model closely approximated the actual. The below "actual" data, and that of Appendix "C" and "D" for the computer model are indicated in both "English" and "S.I." units below. A comparison of the PHOENICS output visually shown in Appendices "C" and "D" illustrates the dissimilarity between the actual and computer model. As indicated by the data, the differences in the computer model (235.5 ft/sec or 71.8 meters/sec) and actual (227.2 ft/sec or 69.3 meters/sec) averaged velocities found in the augmenter tube at slab IZ=27 differed by less than 4 percent. Averaged temperatures in the same location differed between 401.6 degrees Fahrenheit (478 K) for the computer model and 454 degrees Fahrenheit (507 K) actual with a resultant difference of 6 percent. Reference 2 does not indicate whether the effects of radiant energy from the engine exhaust are considered for the actual temperature readings taken in the augmenter tube. If these effects were not considered the 6 percent difference would be reduced. The Hush House mass flow rate for the computer model (2373 lbm/sec or 1076 kg/sec) versus the actual (2067 lbm/sec or 938 kg/sec)

differed by 14.8 percent. The computer model mass flow rate value was actually doubled (hence the 2373 lbm/sec or 1076 kg/sec value) to "model" the entire engine and Hush House.

The Augmentation Ratio is defined as follows:

$$A.R. = \frac{M_{inlet} - M_{engine}}{M_{inlet}}$$

where:

M_{inlet} = inlet mass flow rate

M_{engine} = engine mass flow rate

The inlet mass flow rate = air density * five inlet opening areas * averaged inlet velocity. The engine mass flow rate is given at 197.72 kg/sec/sq meters * 0.195 sq meters engine exhaust area for half of the engine.

Augmentation ratios range from 5 to 15 depending on the design of the Hush House or Test Cell where the higher the ratio typically indicates a more efficient design. The computer model augmentation ratio was found to be 10.6 while the actual was 8.3. The resultant difference is therefore nearly 28 percent. Considering the limited data taken at this actual power level (See Appendix C) it is quite conceivable that the actual augmentation ratio could be greater.

For the actual results the velocity, pressure and temperature measuring devices were photographed because of the

large fluctuations of the gauges. Additionally, velocity data at the final three inlets could not accurately be taken making it difficult to accurately determine the augmentation ratio and the true velocities at the inlets.

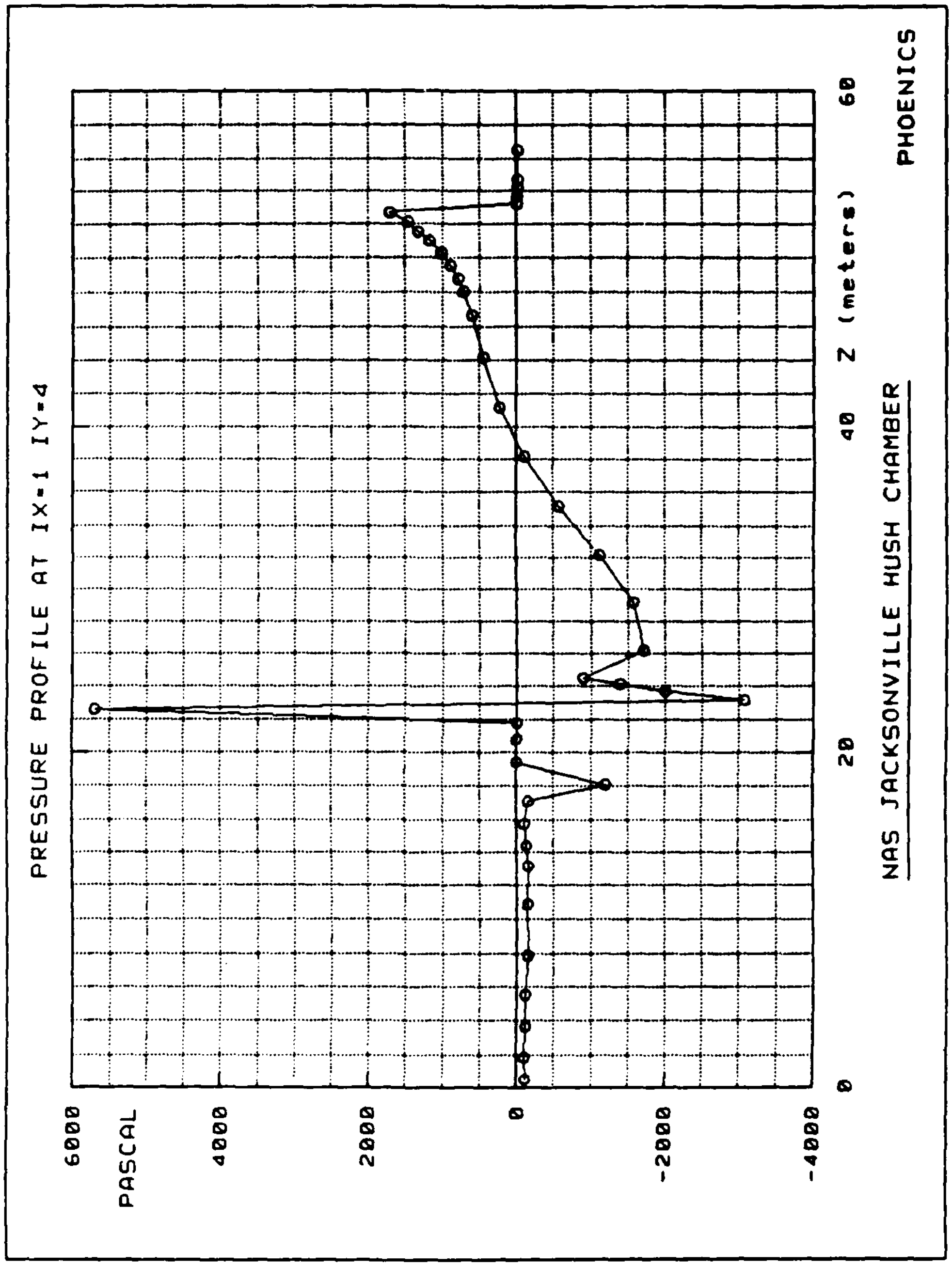

Figure 4.1 Differential Pressure Profile at Volume Slab IX=1 for IY=4 (Engine Height)

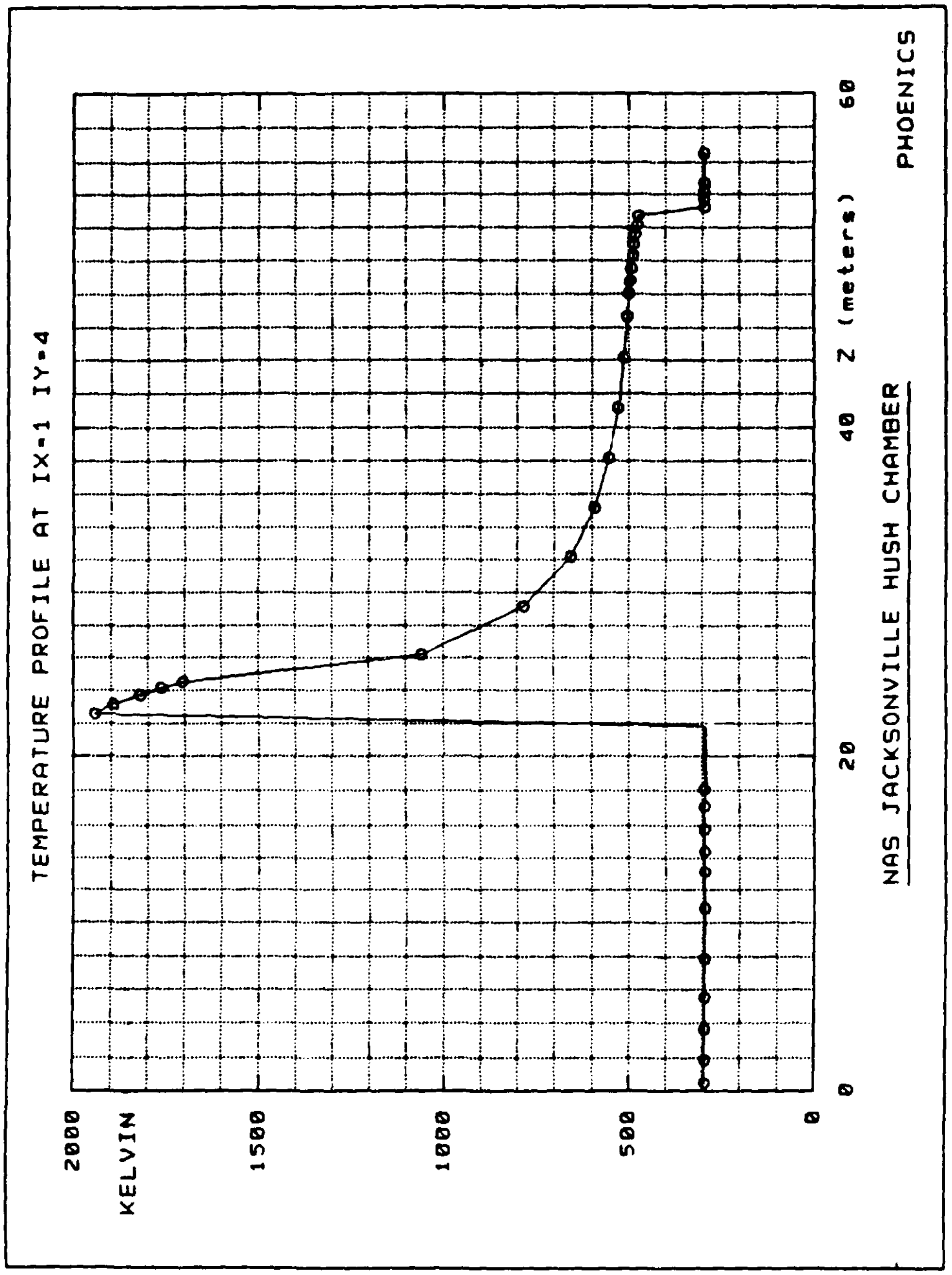

Figure 4.2 Temperature Profile at Volume Slab IX=1 for IY=4 (Engine Height)

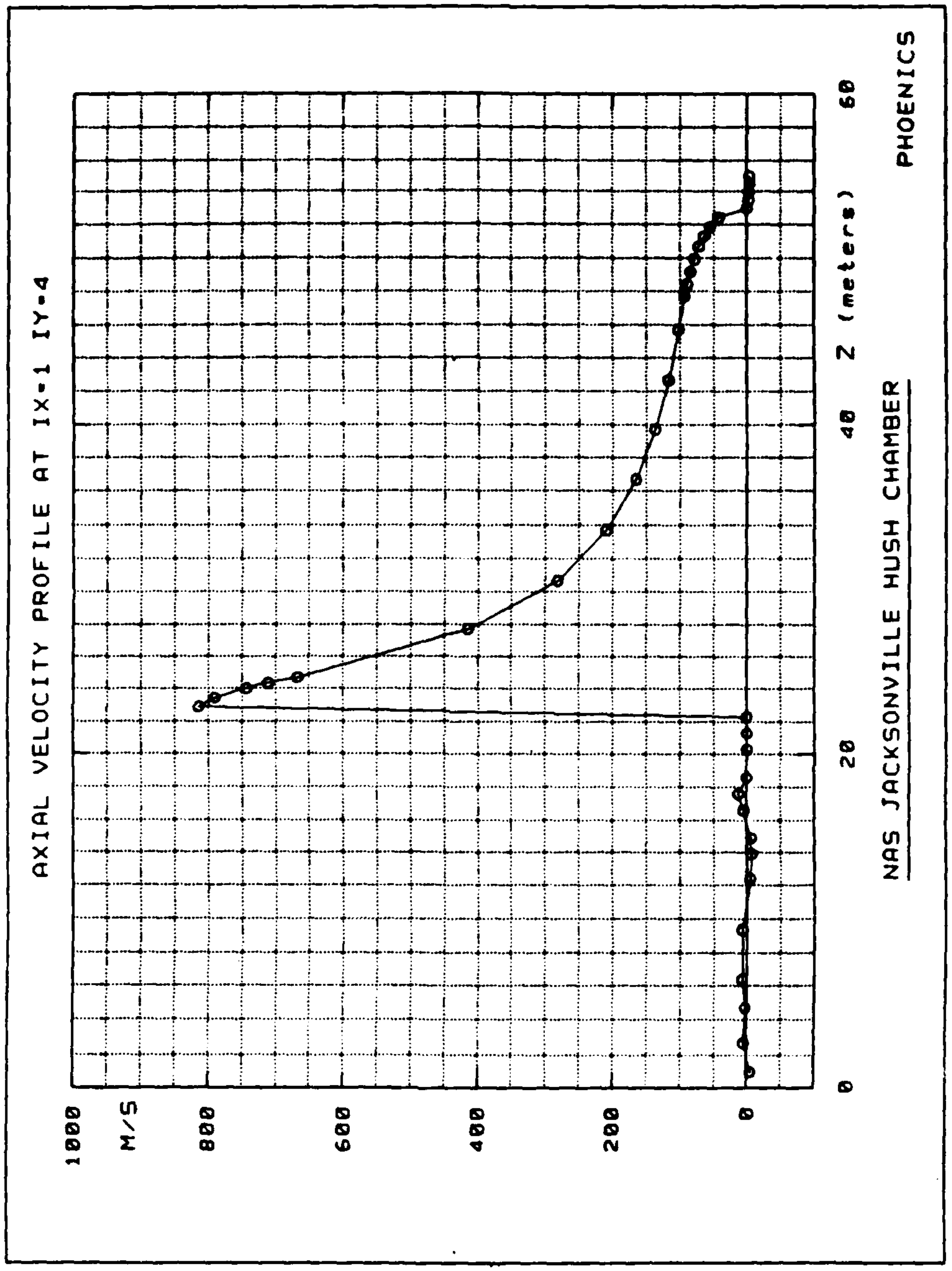

Figure 4.3 Axial Velocity Profile at Volume Slab IX=1 for IY=4 (Engine Height)

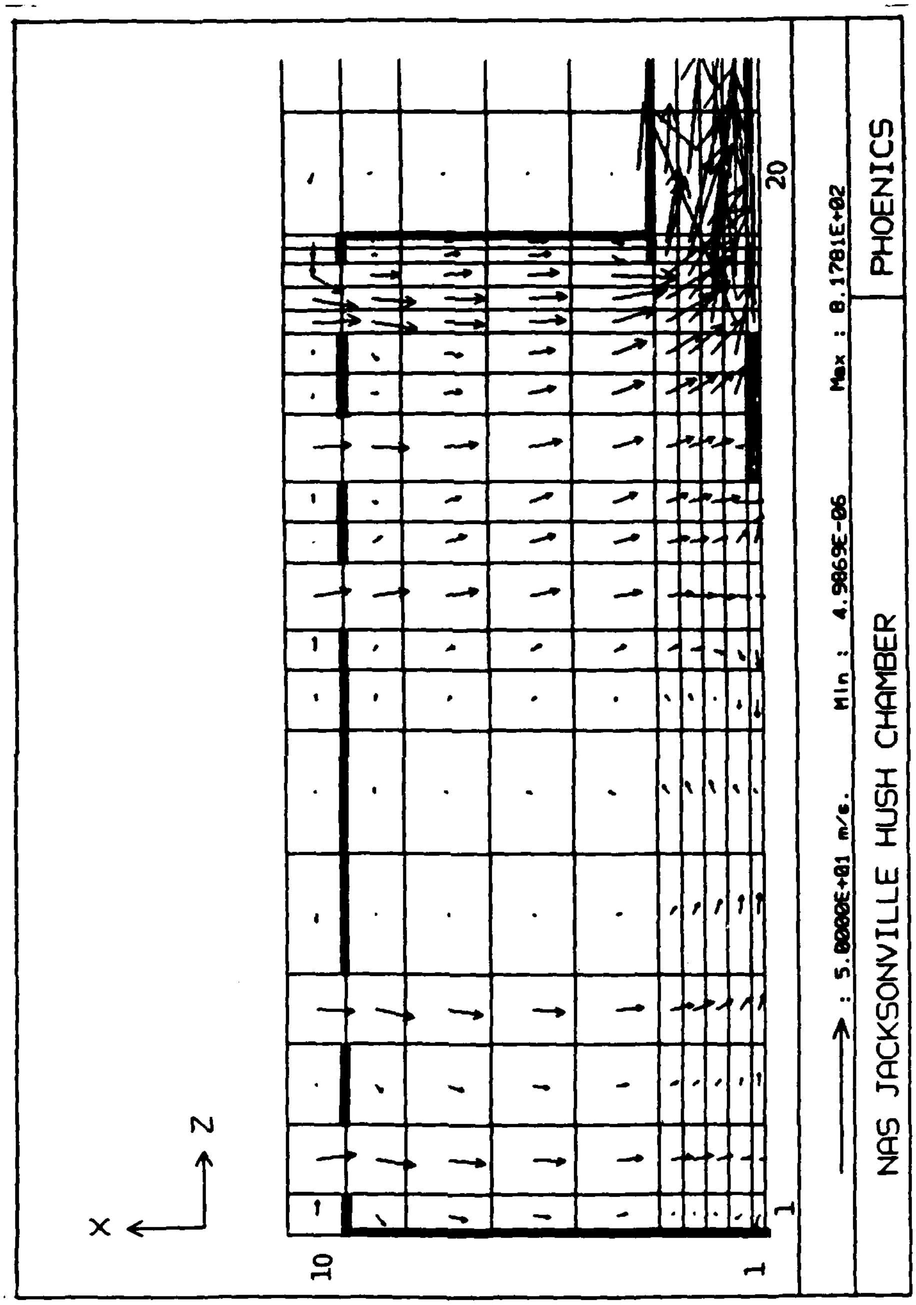

Figure 4.4 Flow Vector Plot of Hush House Inlets and Engine Area (X-Z Plane at IY=4)

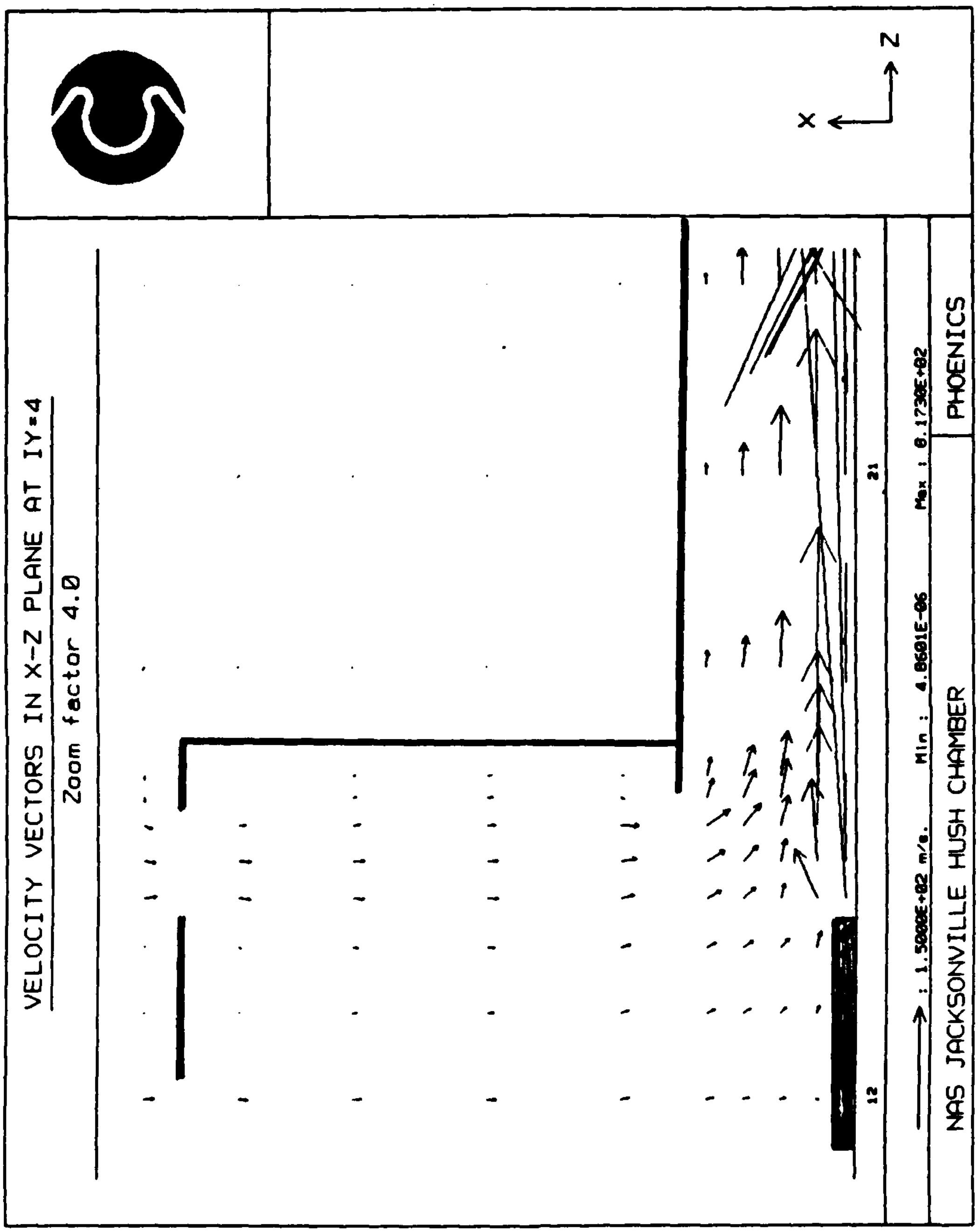

Figure 4.5 Flow Vector Plot in X-Z Plane at IY=4
(Engine Exhaust and Augmenter Tube)

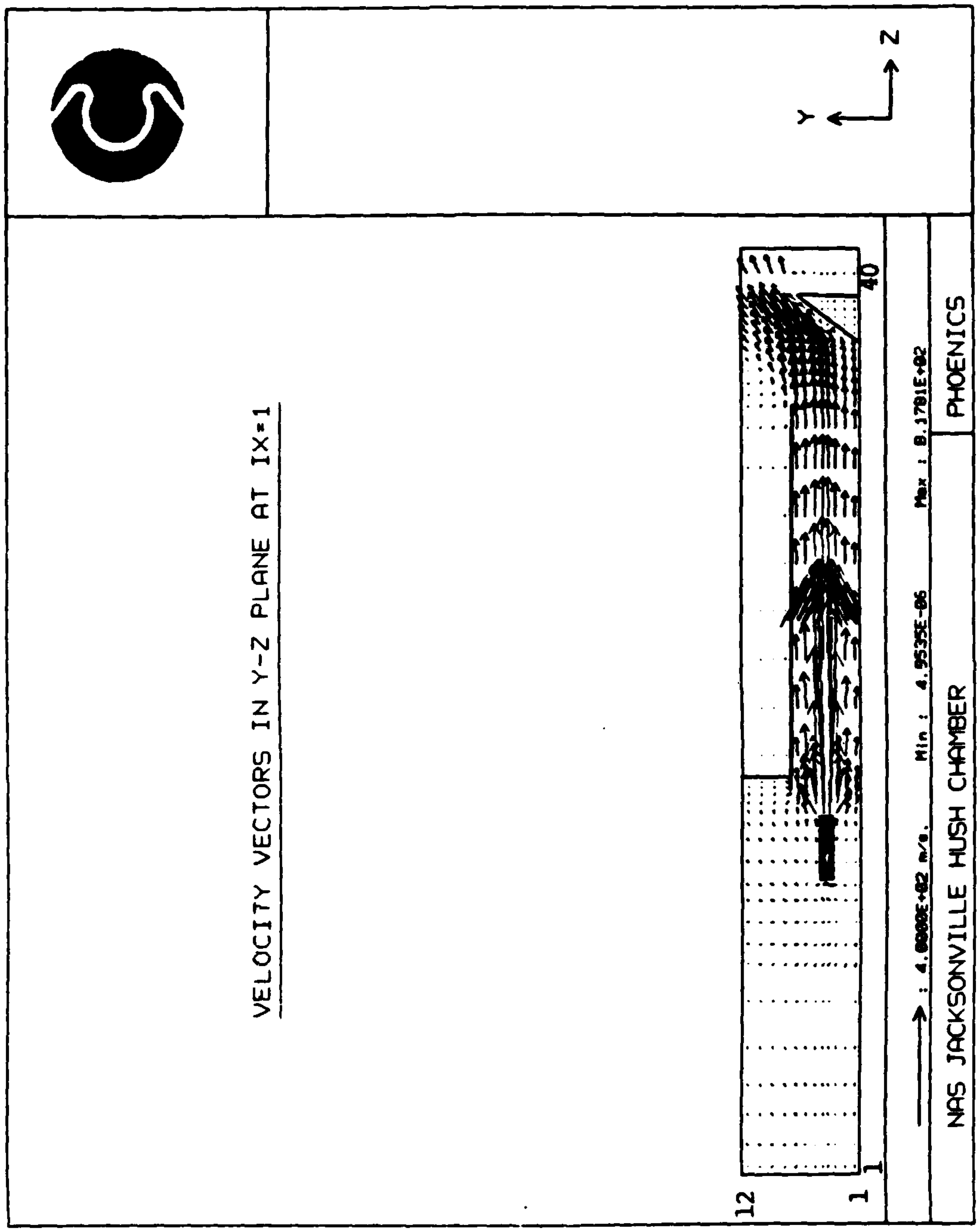

Figure 4.6 Flow Vector Plot in Y-Z Plane at IX=1
(Entire Grid)

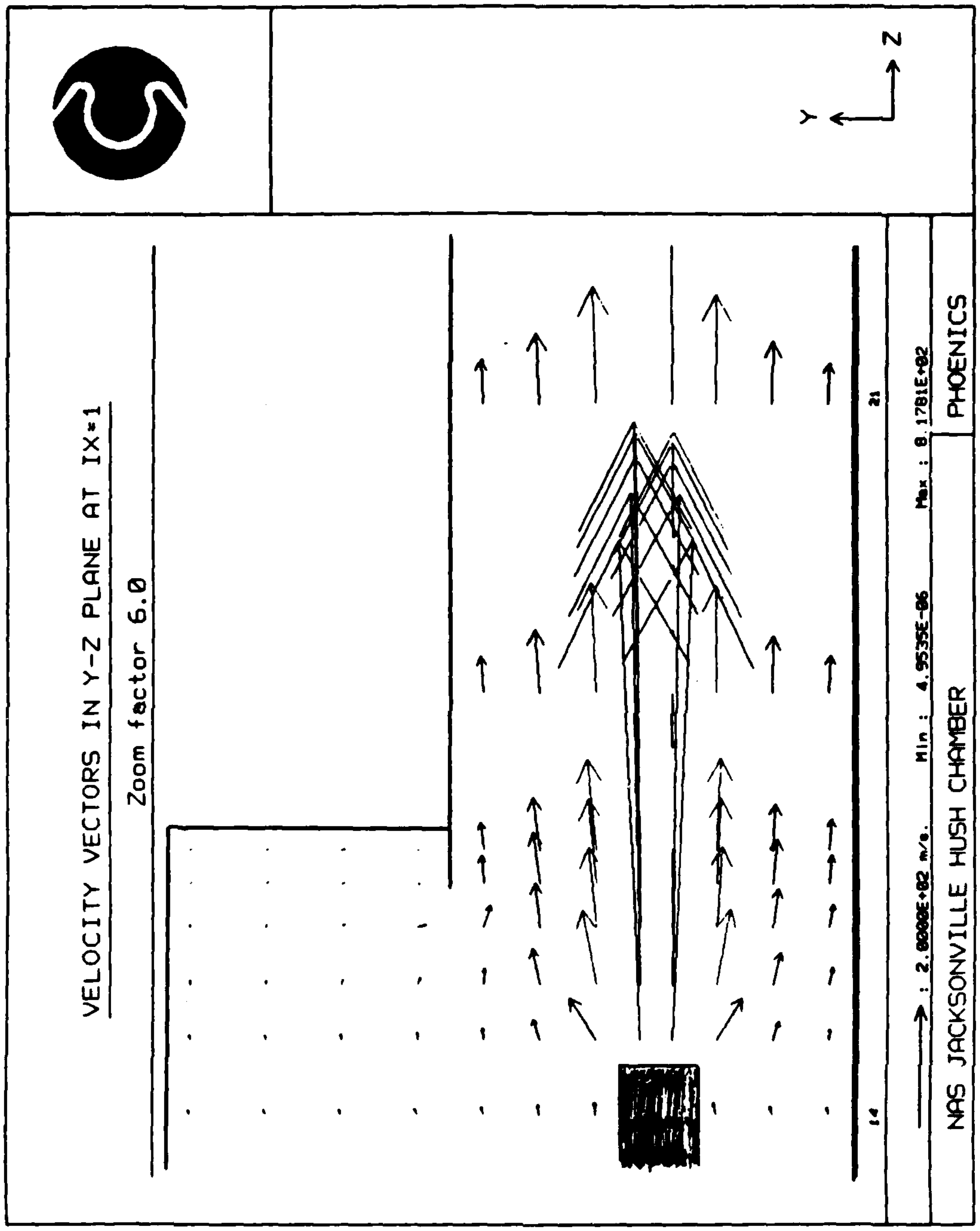

Figure 4.7 Flow Vector Plot in Y-Z Plane at IX=1
(Engine Exhaust Area)

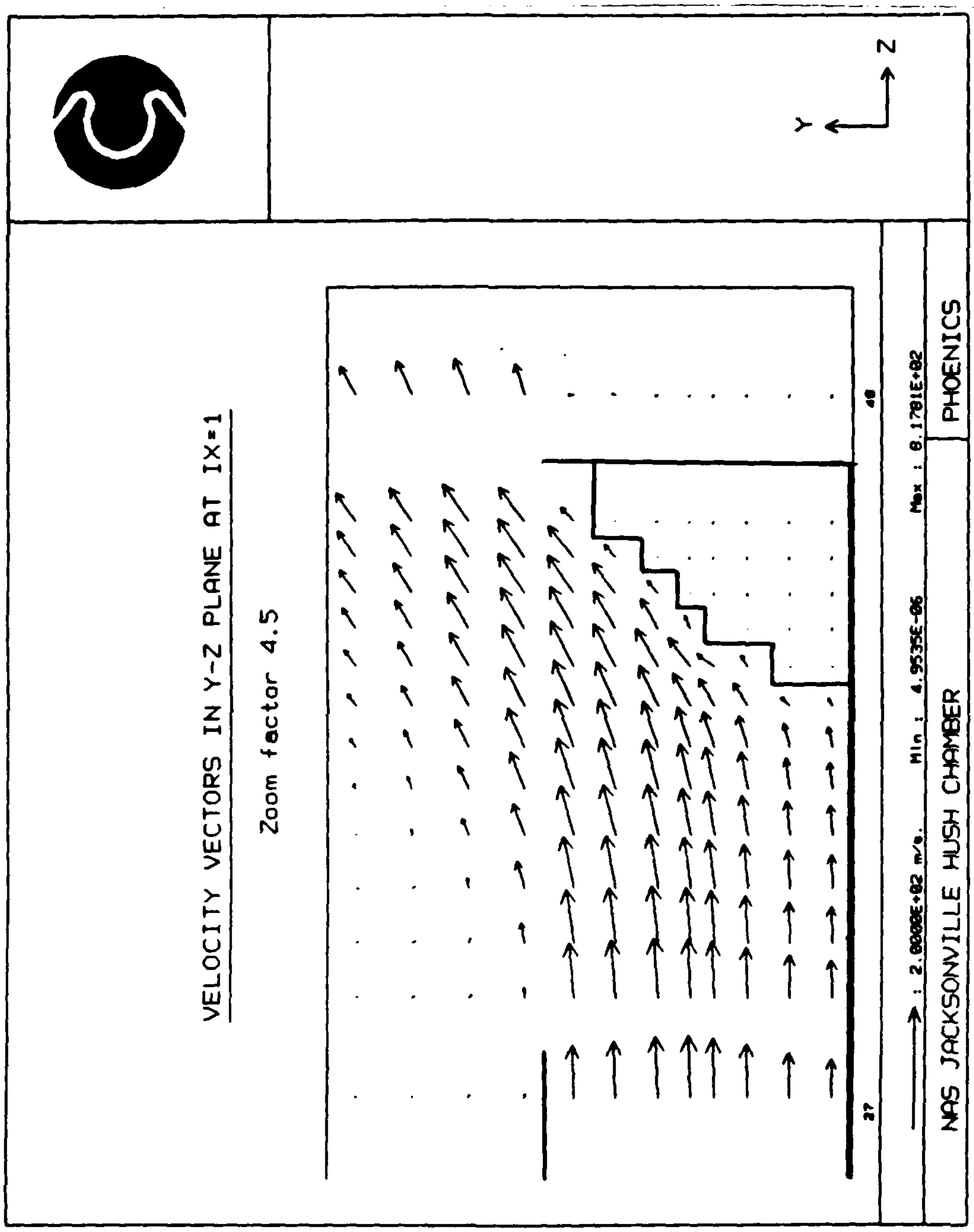

Figure 4.8 Flow Vector Plot in Y-Z Plane at IX=1
(Exhaust to Atmosphere)

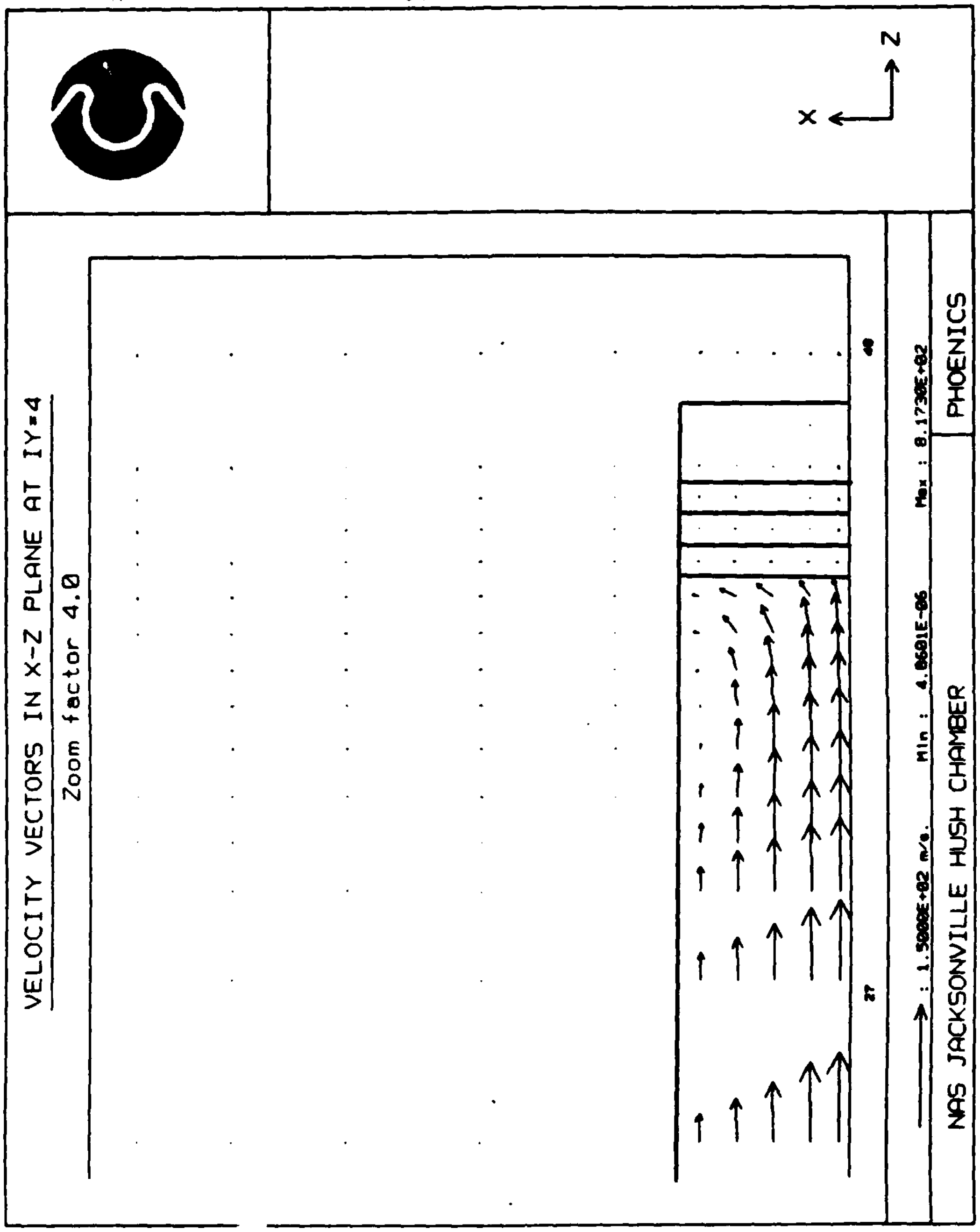

Figure 4.9 Flow Vector Plot in X-Z Plane at IY=4
(End of Augmenter Tube)

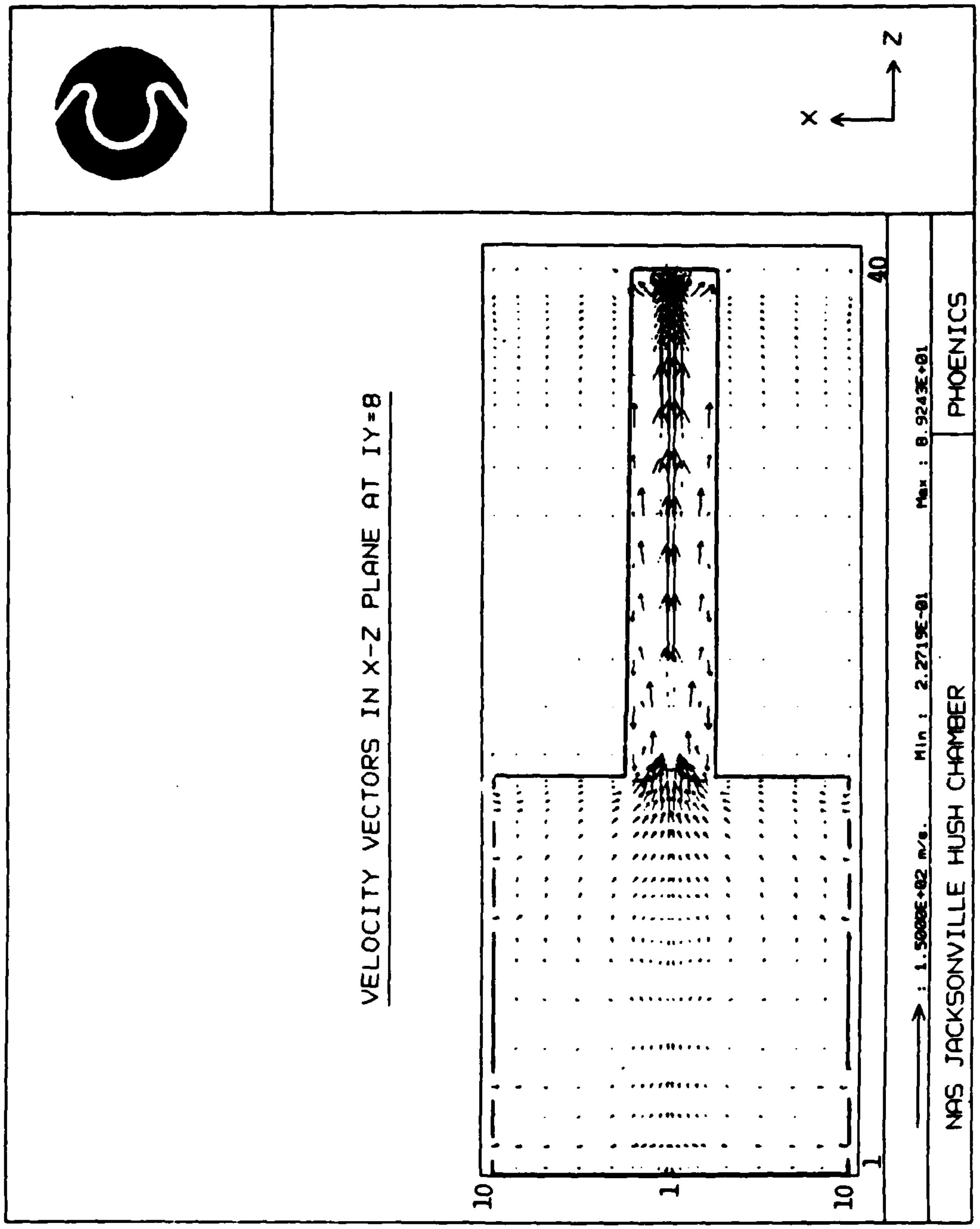

Figure 4.10 Flow Vector Plot in X-Z Plane at IY=8
(Mirrored Image of Entire Grid)

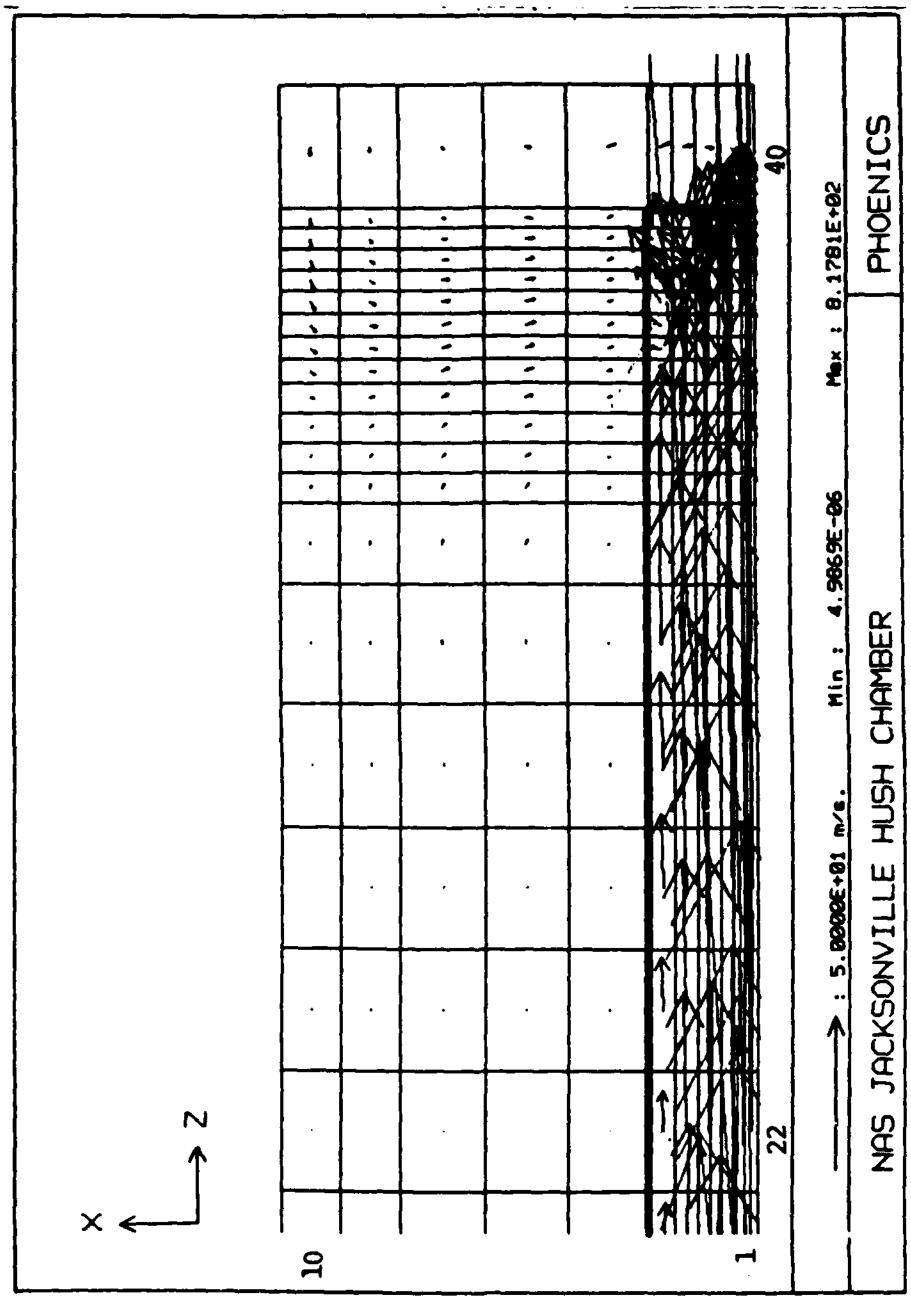

Figure 4.11 Flow Vector Plot of Augmenter Tube Area for X-Z Plane at IY=4

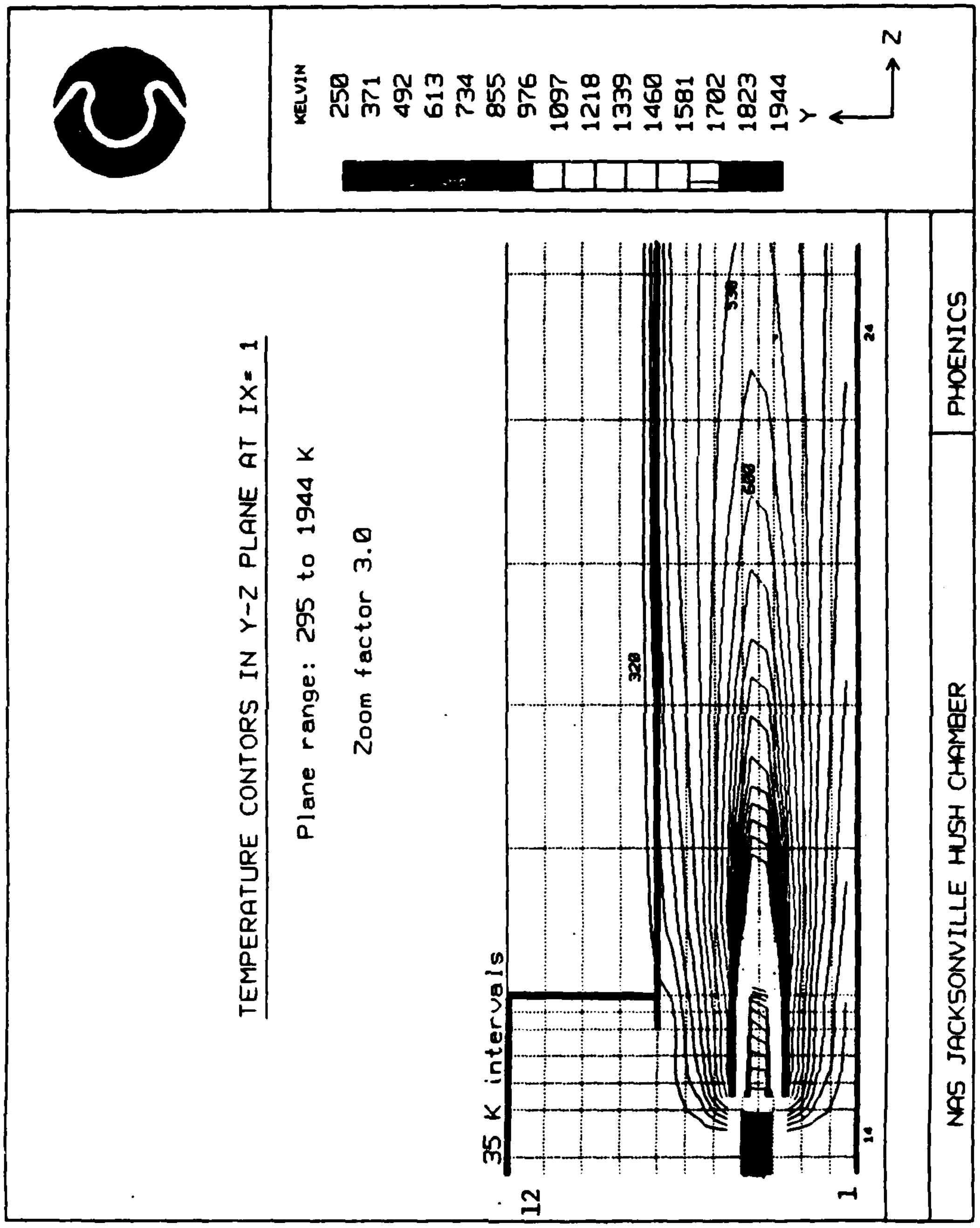

Figure 4.12 Temperature Contour in Y-Z Plane at IX=1 (Engine and Augmenter Tube)

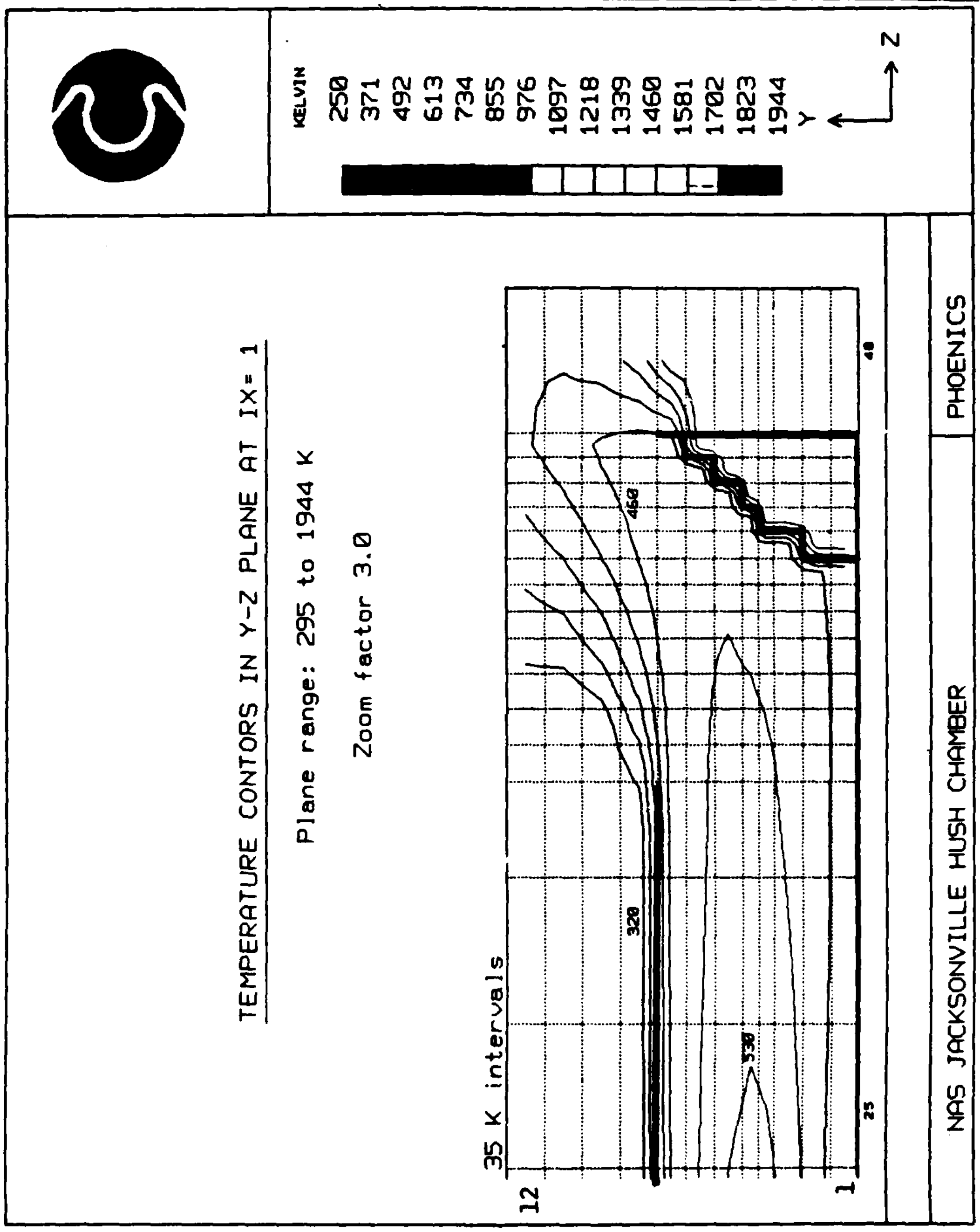

Figure 4.13 Temperature Contour in Y-Z Plane at IX=1
(Augmenter Tube and Exit)

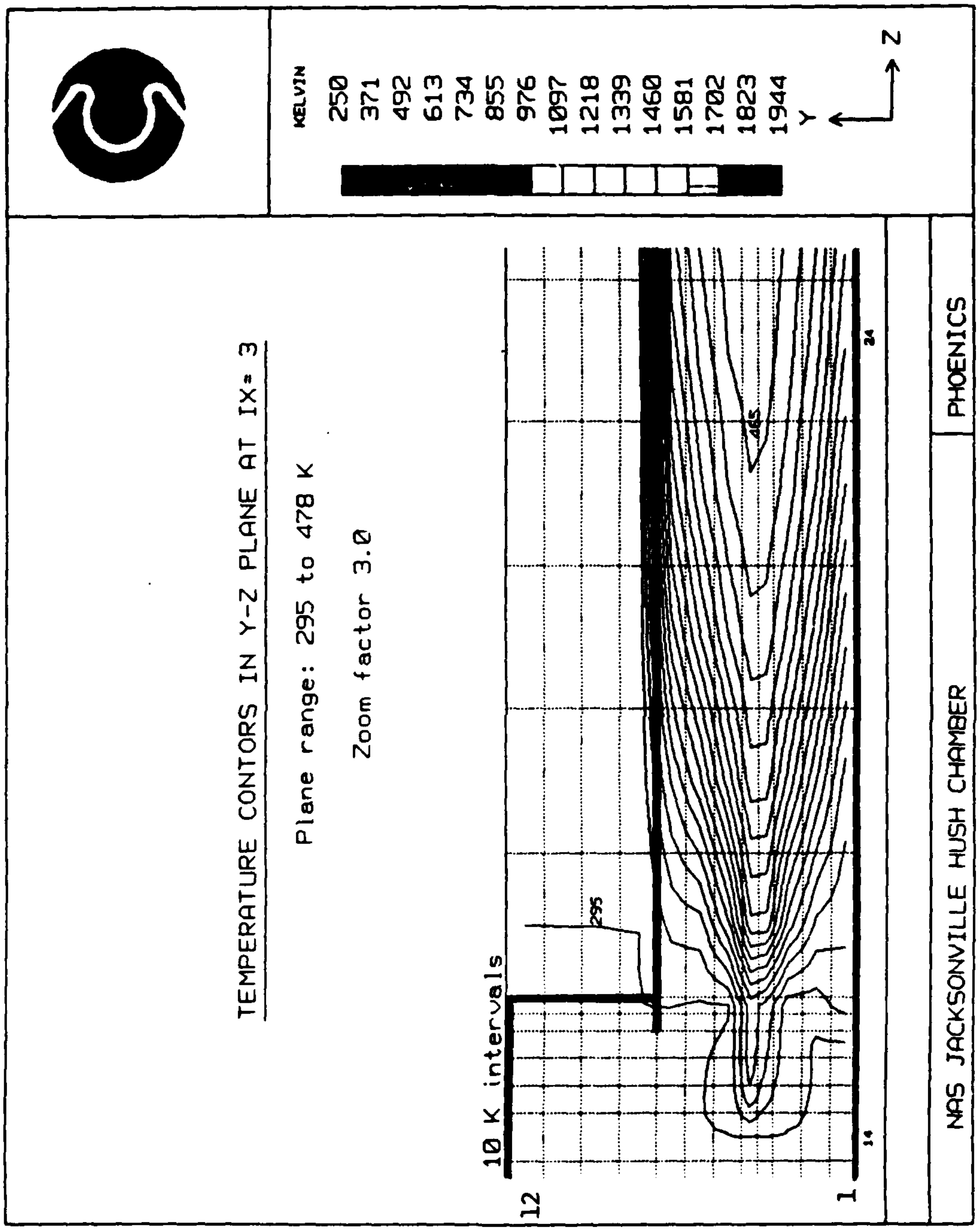

Figure 4.14 Temperature Contour in Y-Z Plane at IX=3
(Engine Exhaust)

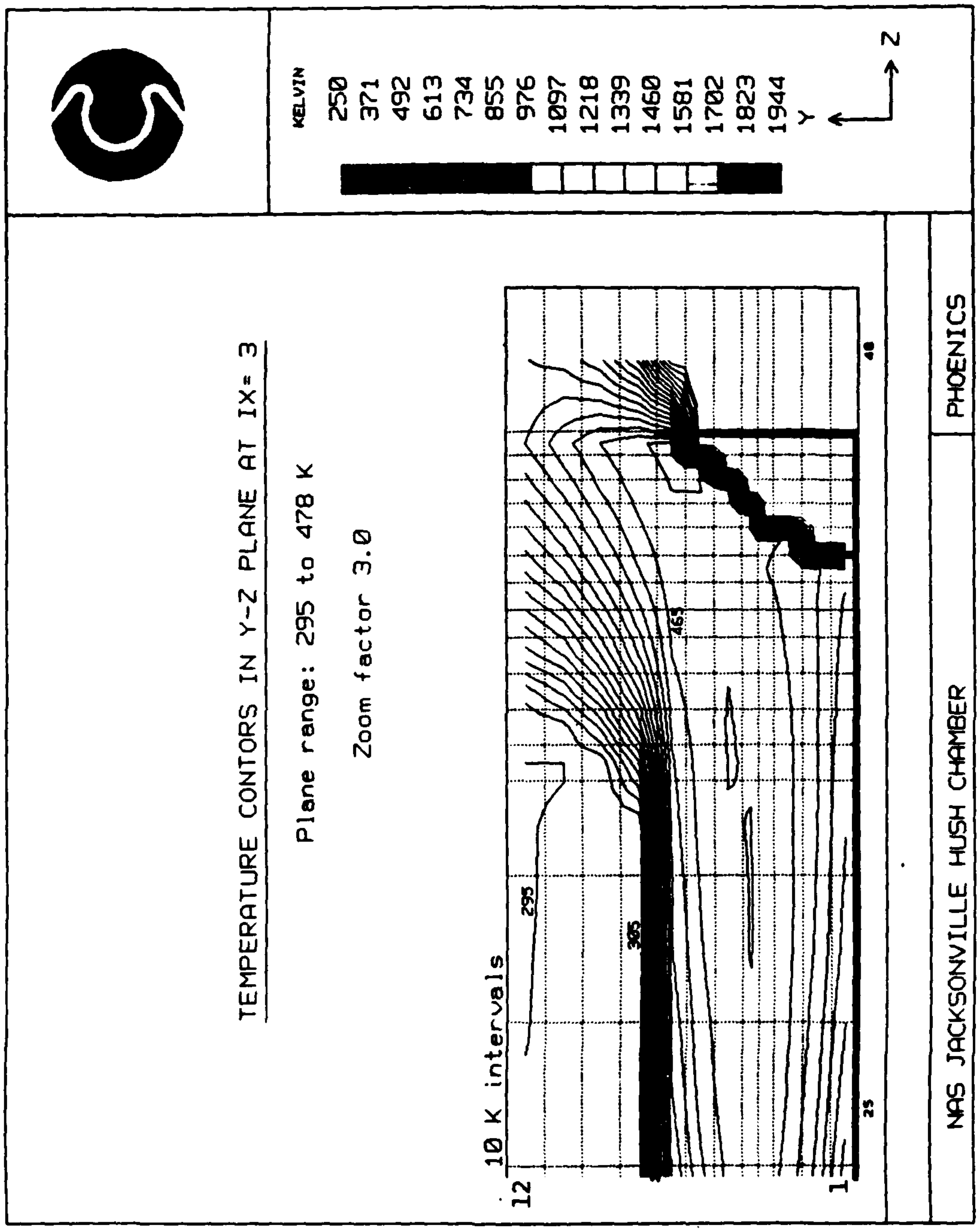

Figure 4.15 Temperature Contour in Y-Z Plane at IX=3
(Engine Exhaust to Atmosphere)

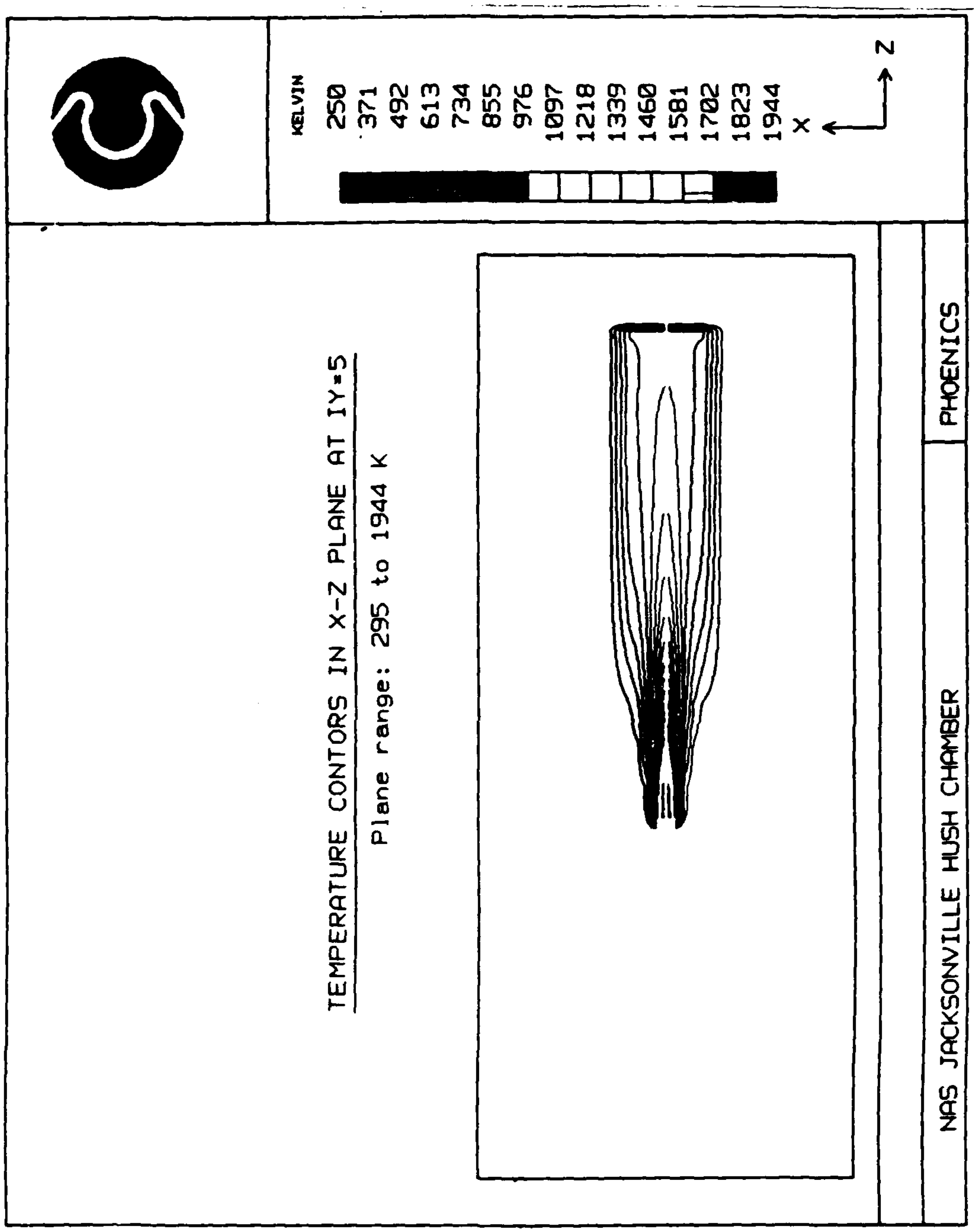

Figure 4.16 Temperature Contour in X-Z Plane at IY=5
(Mirrored Image of Engine Exhaust)

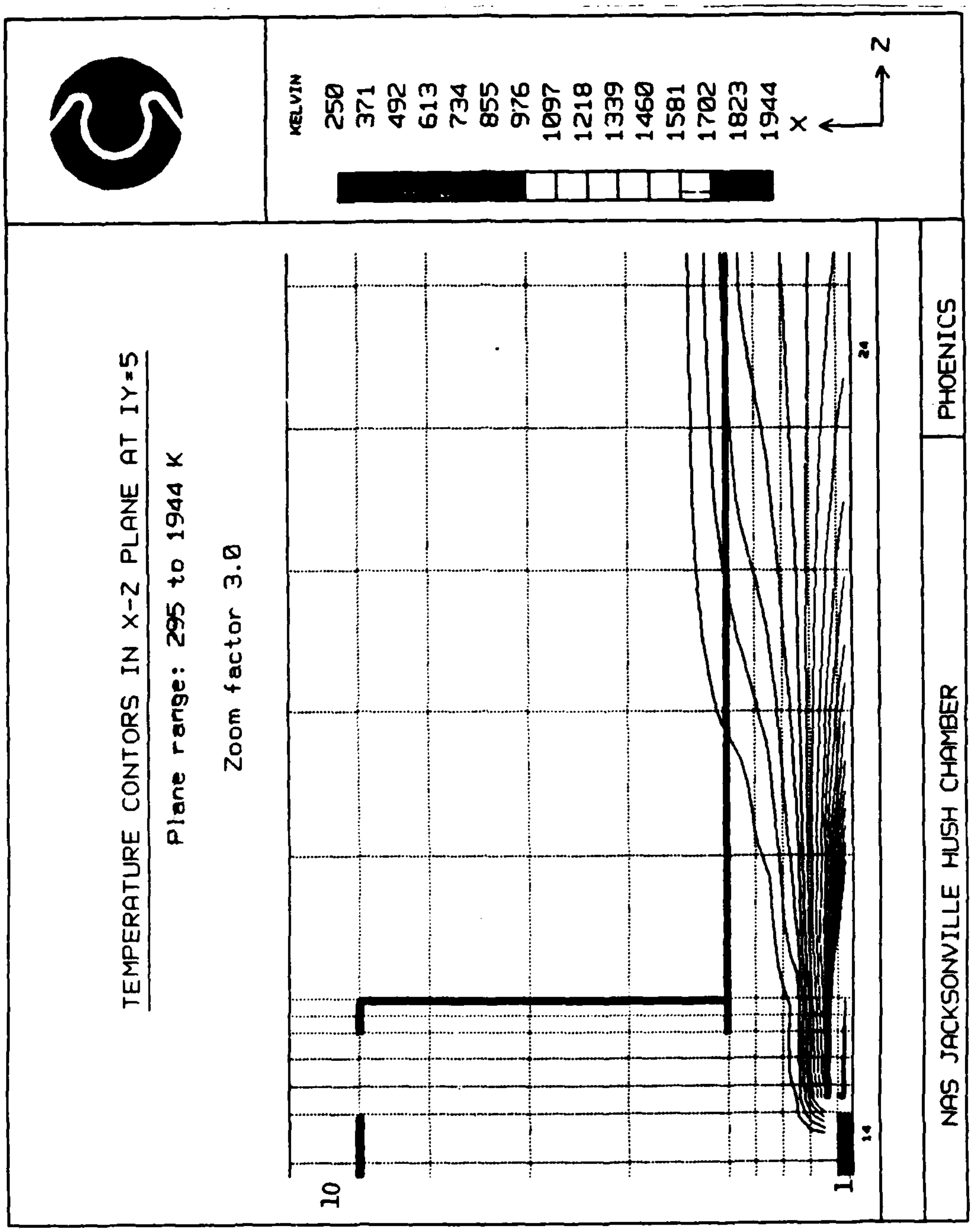

Figure 4.17 Temperature Contour in X-Z Plane at IY=5
(Engine Exhaust)

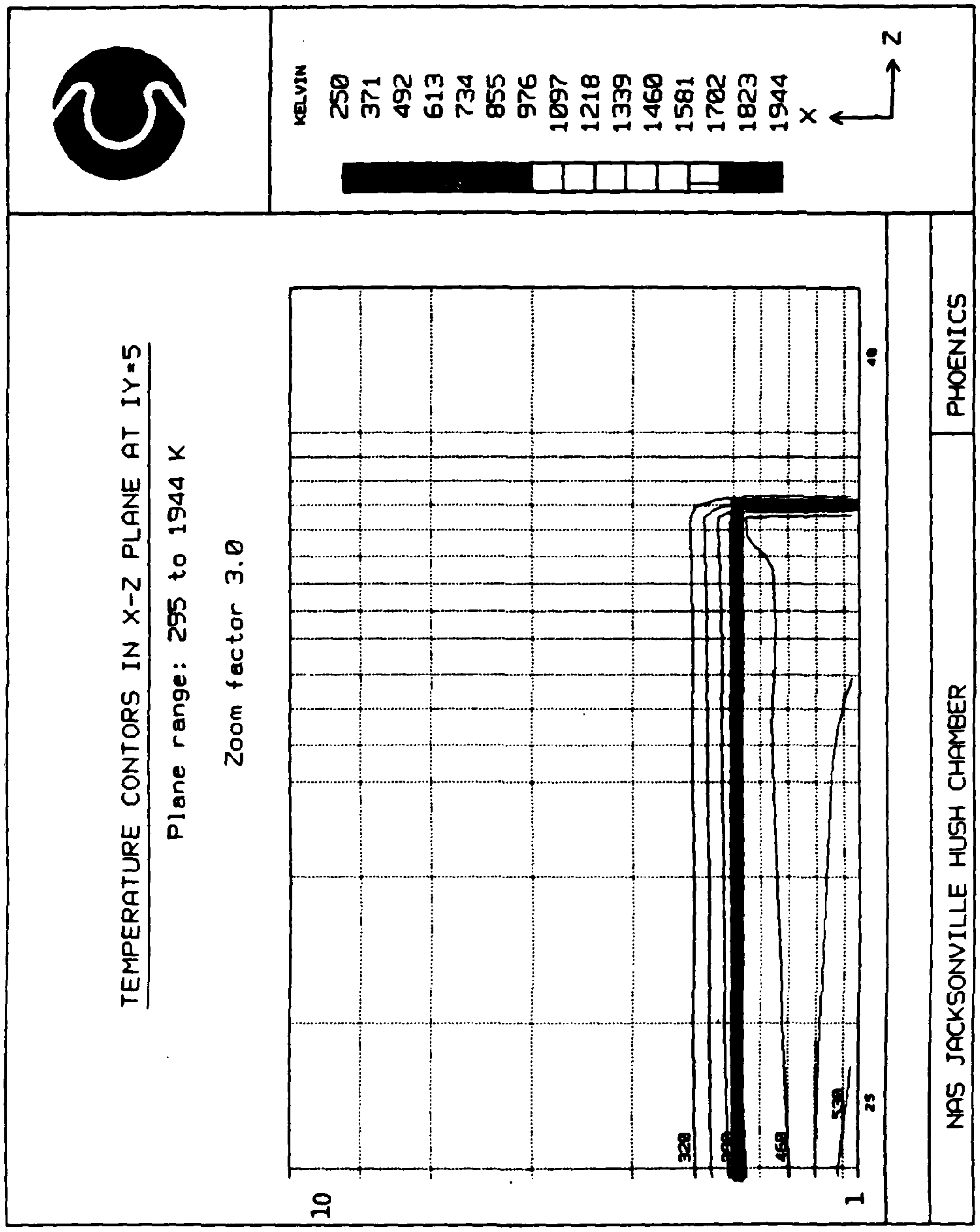

Figure 4.18 Temperature Contour in X-Z Plane at IY=5
(Engine Exhaust in Augmenter Tube)

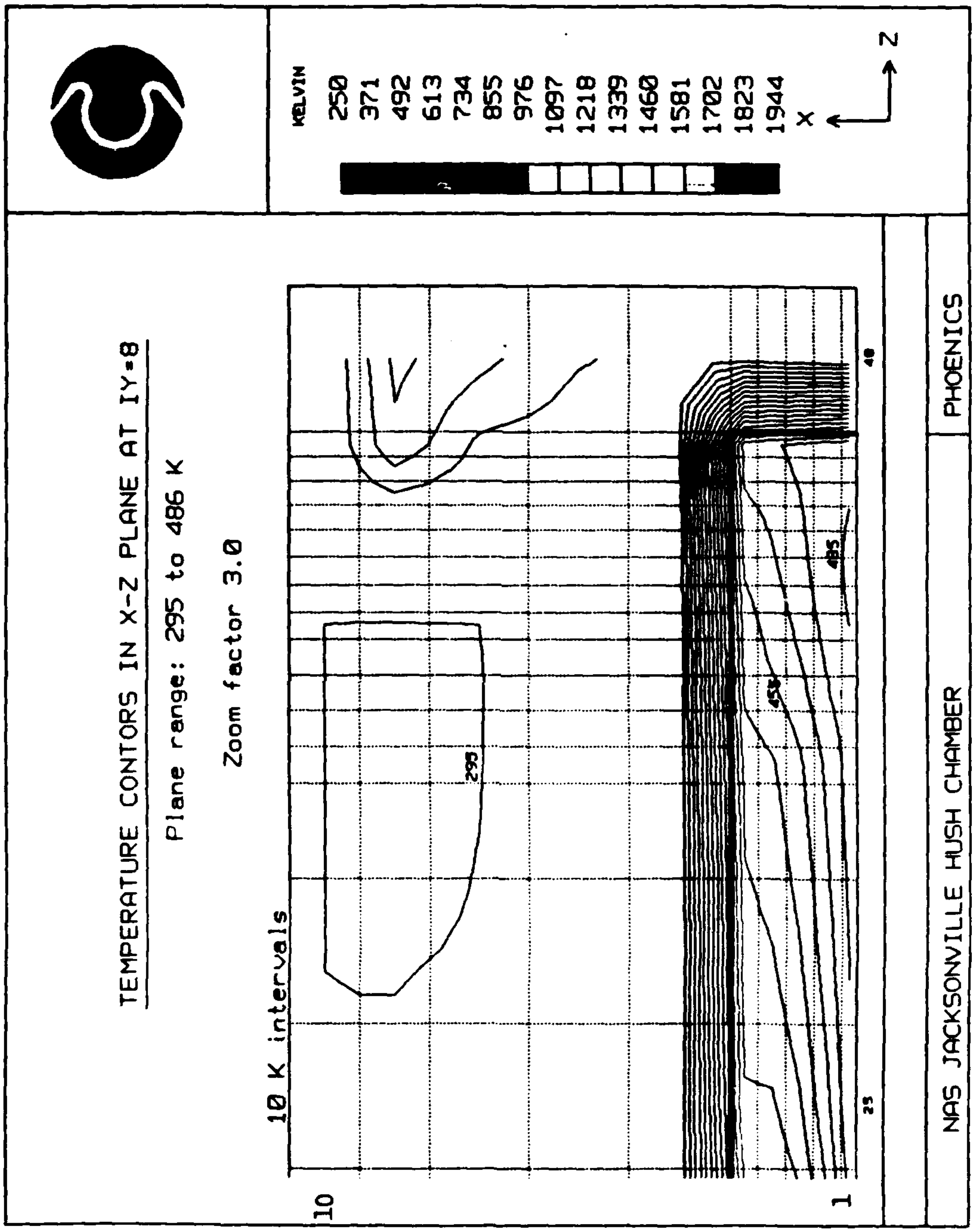

Figure 4.19 Temperature Contour in X-Z Plane at IY=8
(Engine Exhaust in Augmenter Tube)

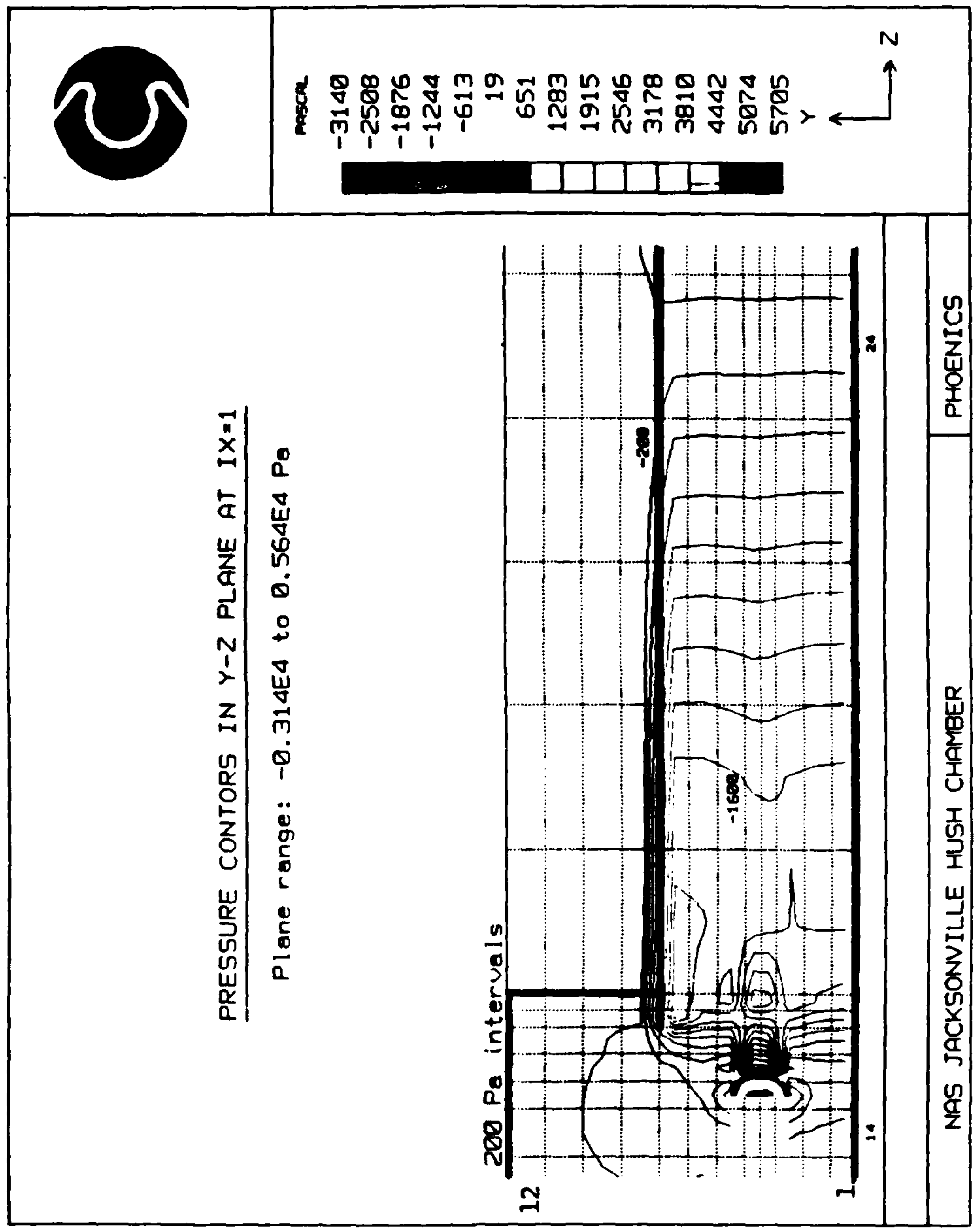

Figure 4.20 Differential Pressure Contour in Y-Z Plane at IX=1 (Engine Exhaust)

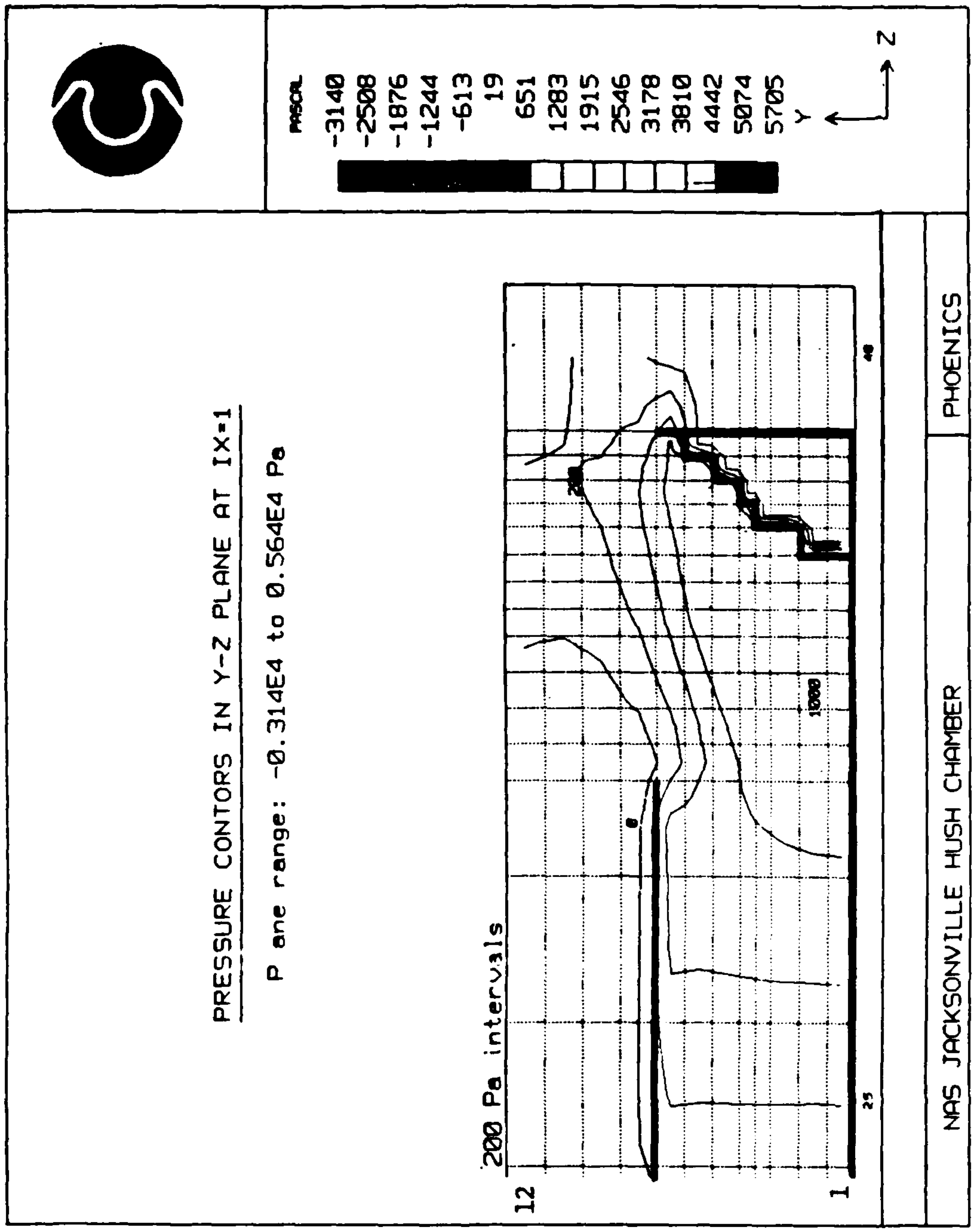

Figure 4.21 Differential Pressure Contour in Y-Z Plane at IX=1 (Engine Exhaust to Atmosphere)

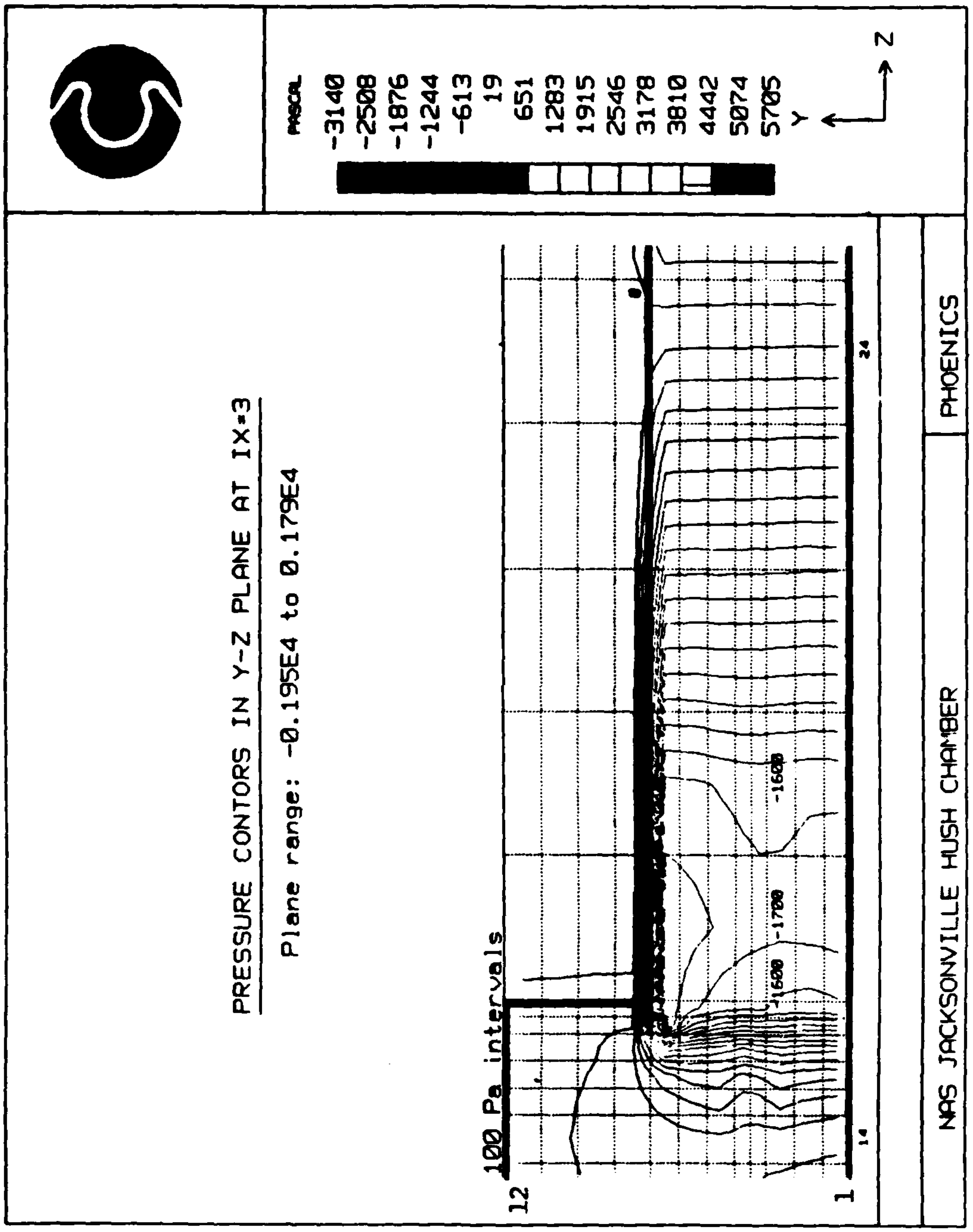

Figure 4.22 Differential Pressure Contour in Y-Z Plane at IX=3 (Engine Exhaust and Augmenter Tube)

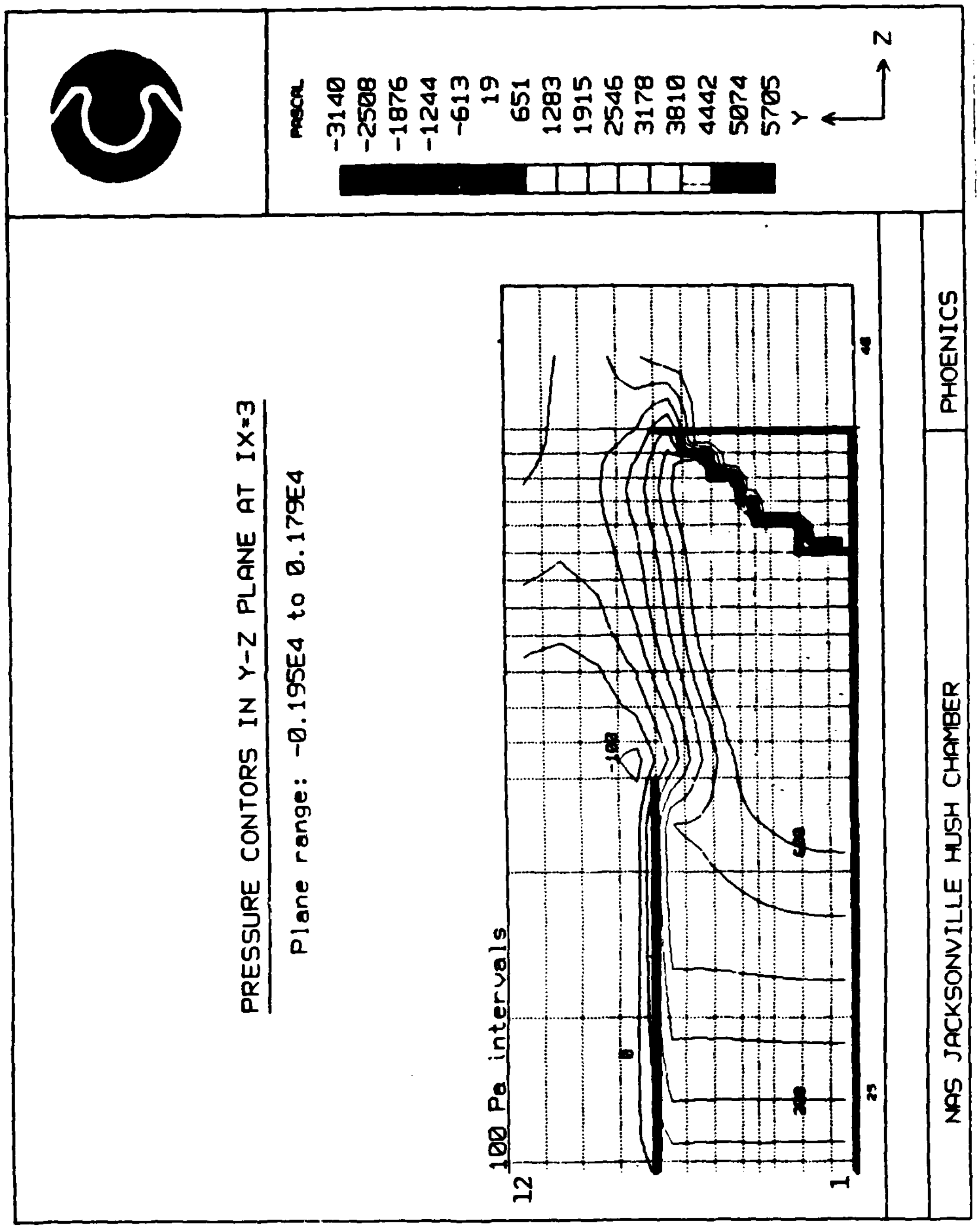

Figure 4.23 Differential Pressure Contour in Y-Z Plane at IX=3 (Exhaust to Atmosphere)

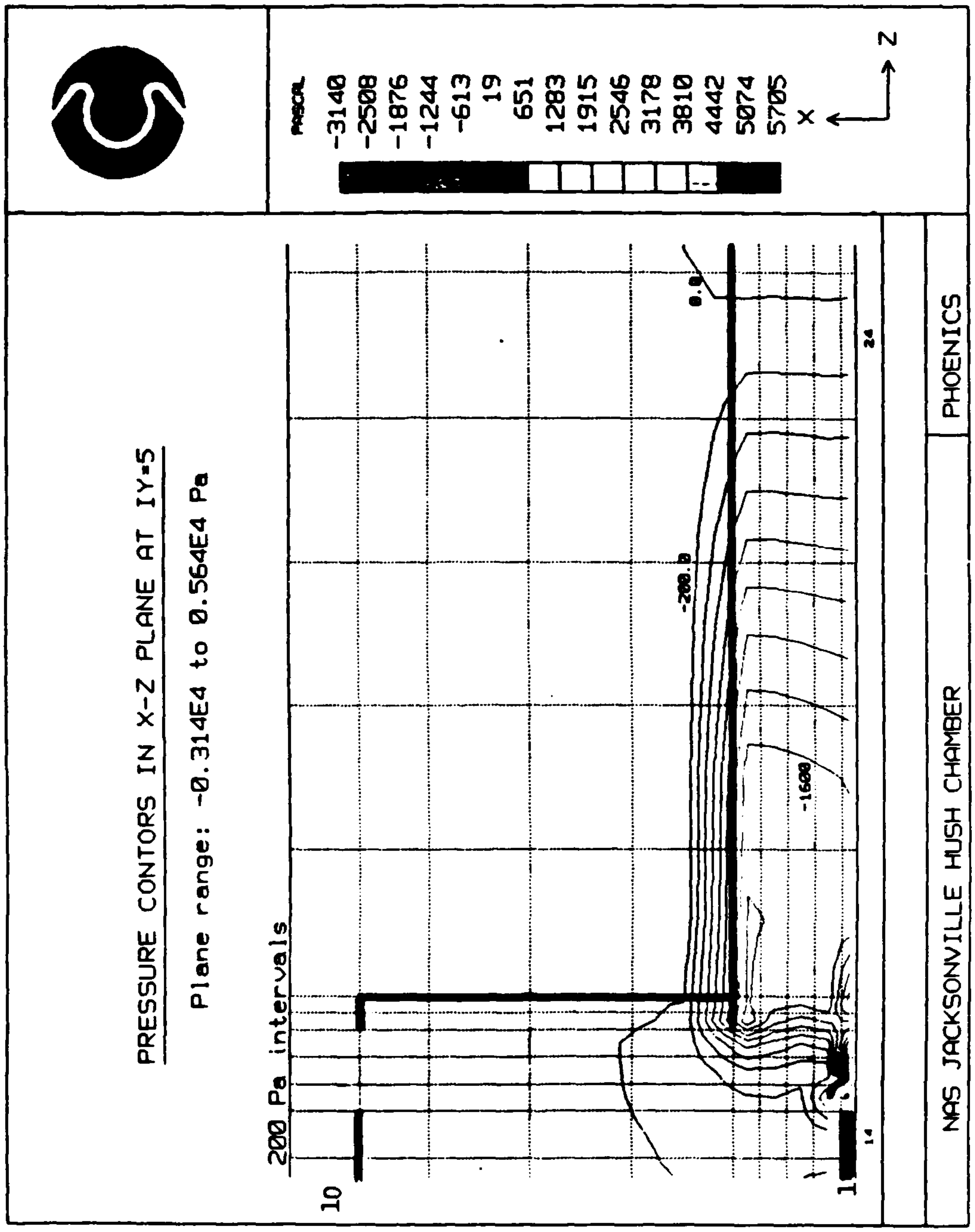

Figure 4.24 Differential Pressure Contour in X-Z Plane at IY=5 (Engine Exhaust)

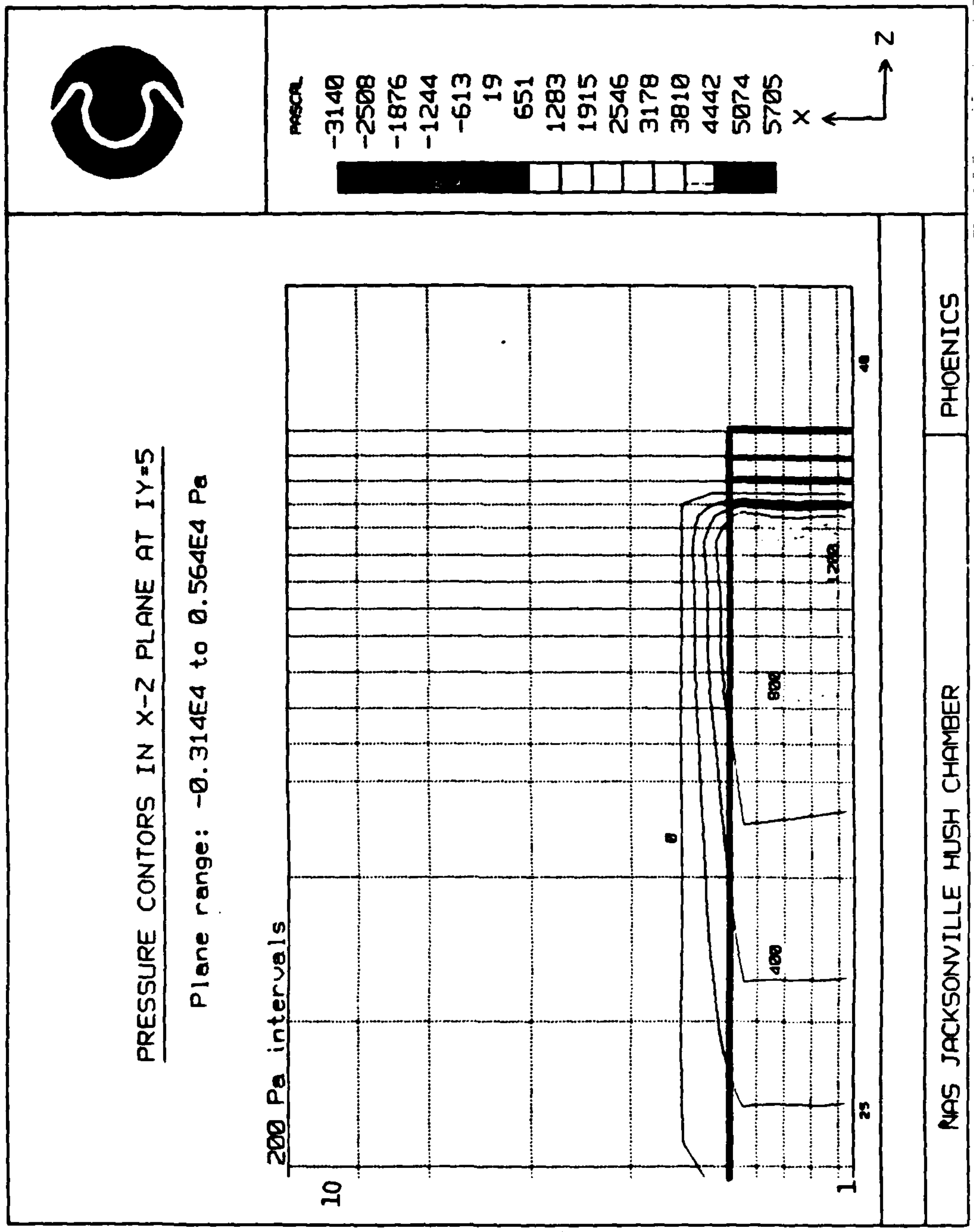

Figure 4.25 Differential Pressure Contour in X-Z Plane at IY=5 (Augmenter Tube)

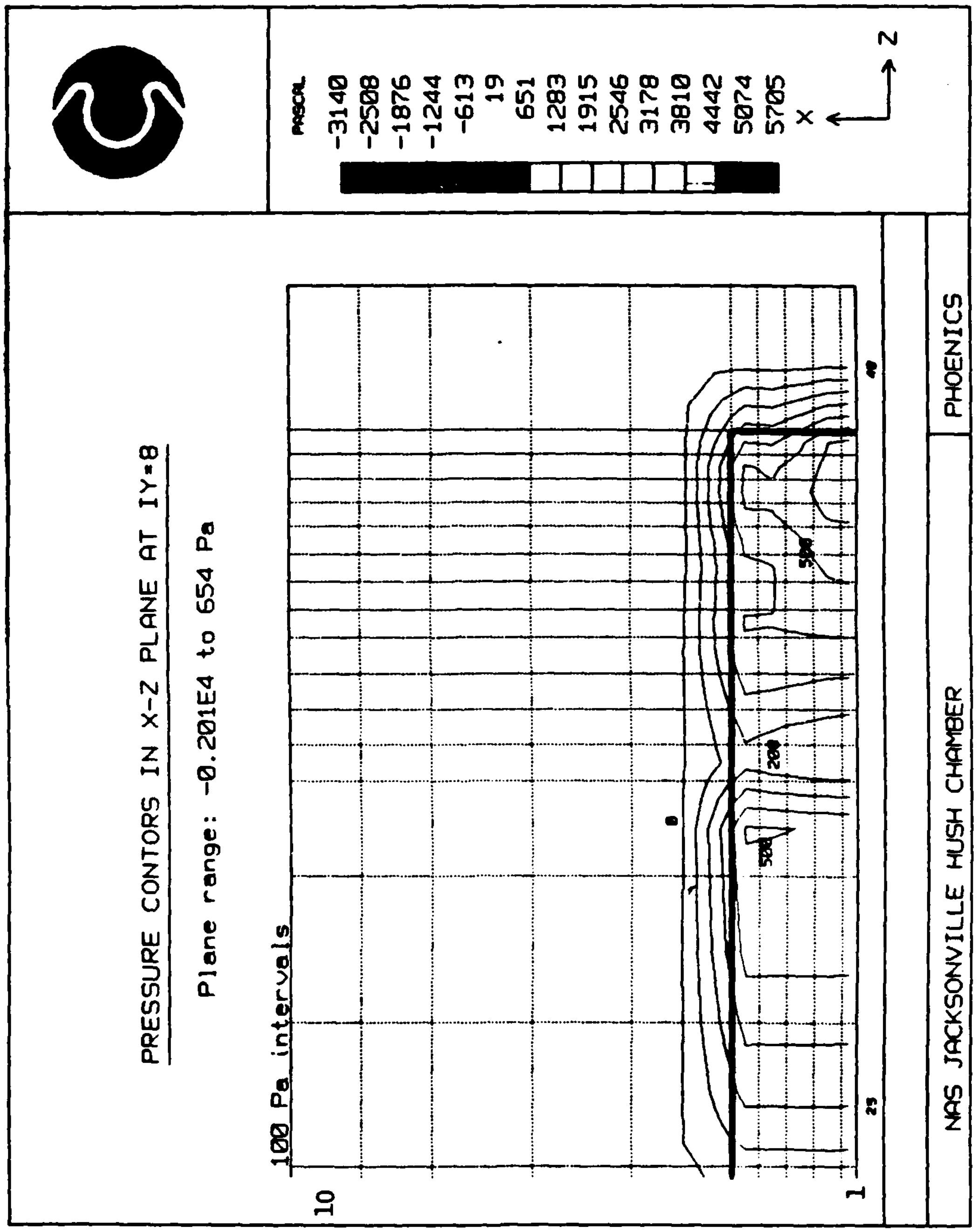

Figure 4.26 Differential Pressure Contour in X-Z Plane at IY=8 (Augmenter Tube)

V. SUMMARY AND RECOMMENDATIONS

A. SUMMARY

Using the Parabolic, Hyperbolic, or Elliptic Numerical Integration Code Series (PHOENICS) a computer model of the Naval Air Station Jacksonville Florida's Hush House facility with a J-79-GE-8 gas turbine engine was simulated. The performance of this computer model was compared to actual performance data taken with an F-4 Phantom II undergoing testing at an identical facility located at Kelly AFB. An on-site inspection was conducted at Dobbins AFB in Atlanta Georgia to provide "hands-on" experience with the facility.

The computer analysis consisted of slowly building up excitation in the model (using the KEMODL turbulence model) until full power was obtained. Computer generated (tabulated and graphical) results were compared with the actual test data. Results of the computer model, in comparison to the actual data, were in good agreement. Flow directions, velocities and temperatures were consistent with actual results.

B. RECOMMENDATIONS

A comparison of actual to computer model data for this thesis indicates that PHOENICS is a useful design and

troubleshooting tool allowing the user to better understand the physics of the model. PHOENICS at NPS is now just coming into potent use with a variety of research projects for aeronautical and mechanical engineers.

To ensure proper and full use of this code several major "glitches" must be overcome. Time constraints placed on the use of the IBM 3033 main-frame computer limit the number of "sweeps" obtainable by the student. The batch system does not lend itself to correcting possible errors that may arise. An interactive system, such as the "VAX" stand alone systems being installed in Mechanical Engineering, is an ideal answer.

PHOTON was not available with the PHOENICS installation on the IBM 3033 main-frame computer. A complicated conversion process (See Appendix "E") was undertaken to convert IBM to VAX "format" to allow the use of PHOTON using data from the main-frame. This conversion process which involved a swap of information from IBM to DEC to VAX hardware took nearly 2 weeks to accomplish. In September 1988 this transfer procedure will no longer be possible at NPS with the elimination of certain hardware at the Computer Science Department although data transfer will still be possible to other facilities such as CHAM.

The use of PHOTON early in the computer "runs" would have uncovered several missing "CONPOR" statements and therefore

"verified" the structural integrity of the facility. Additionally, the amount of time required to "wade" through the 300 pages of printout could be reduced to several video screens with a much reduced volume of printout.

The computer model used in this thesis was formulated using cartesian coordinates. Several parts of the structure, including the augmenter tube and engine, were curve shaped. Geometric approximations were made to substitute for the curve shaped areas. A more computationally time consuming model with increased numbers of cells and/or the use of body-fitted-coordinates (BFC) would enhance the computer model.

As noted in Figure 4.2, over fifty percent of the reduction in engine exhaust gas temperatures occurred in the first 20 percent of the augmenter tube. Could an improved design include shortening the augmenter tube? This type of "what if" question can be answered using PHOENICS. With the variable data file ("DF09") already in place the grid pattern can be modified to shorten the augmenter tube. Minimal computations would be required to gather definitive results.

Parameter studies, including shortening the length of the augmenter tube (to determine the effect of augmenter tube length on performance), movement of the engine location in the Hush House, changing the inlet locations and sizes, and the use of different turbulence models could lead to improvements

on the present Hush House design. In fact, the ability to change parameters and observe their effect on system performance is the prime attribute of numerical modeling.

Finally, a discussion of turbulence is in order. PHOENICS offers four turbulence models which can be readily selected. The four models are: Algebraic, Mixing Length, K-Mixing Length or K-Epsilon. The user can also formulate a model of his own choosing which can be incorporated into the code via the "GROUND" program. Two questions arise. First, which turbulence model is appropriate for the problem under investigation? Secondly, how strong is the coupling between other system response variables and turbulence variables? The second question might be answered by running the PHOENICS Code on the problem using several different turbulence models. Unfortunately there was not adequate time to perform this in the investigation. The first question can not be resolved until a better understanding of turbulence is obtained.

C. CONCLUSIONS

The computer model results generated by this thesis closely parallel the actual test data. The results therefore indicate that the PHOENICS code can be successfully utilized to model future Test Cell and Hush House applications as well as "trouble-shoot" suspect areas of interest. Also, areas that may be difficult to properly monitor with test equipment could

be modelled instead. With the use of additional "cells" and/or BFC a more refined model could more closely duplicate the test facility providing more accurate results. Follow-up parametric studies to improve and verify the design and data seem in order. The results indicate that the Hush House is performing as intended.

APPENDIX A
THE PHOENICS Q1 FILE

```
TALK=F,RUN(1,1)
  ****************************************************************
  * NAVAL AIR STATION JACKSONVILLE FLORIDA HUSH HOUSE TEST *
  * FACILITY. THESIS PROJECT OF LT ERIC A. NICOLAUS USCG   *
  * WITH THESIS INSTRUCTOR PROF DAVID SALINAS.             *
  ****************************************************************

  ****************************************************************
  *                  LIST OF VARIABLES                     *
  *                                                        *
  * WJET: VELOCITY OF ENGINE EXHAUST (METERS/SEC)          *
  * MJET: MASS FLOW RATE OF GAS (KG/SECOND/SQ METER)       *
  * TJET: JET EXHAUST GAS TEMPERATURE (DEGREES KELVIN)     *
  * PJET: EXHAUST PRESSURE OF JET ENGINE (NEWTONS/SQ METER)*
  * RHOJET: DENSITY OF THE GAS (KG/CUBIC METER)            *
  * HJET: ENTHALPY (JOULES/KG OR NEWTON*METERS/KG)         *
  * KEJET: KINETIC ENERGY (JOULES OR NEWTON-METERS)        *
  * GASCON: GAS CONSTANT (JOULES/(KG-DEG KELVIN))          *
  * TAMB: AMBIENT AIR TEMPERATURE (DEGREES KELVIN)         *
  * HAMB: AMBIENT ENTHALPY (JOULES/KG)                     *
  * KEINJ: TURBULENT KINETIC ENERGY (JOULES) OF JET        *
  * CSUBP: SP HT @ CONST PRE (JOULES/(KG-DEG KELVIN))      *
  * EPINJ: DISSIPATION RATE OF TURBULENT KE (JOULES) OF JET*
  * KEINA: TURBULENT KINETIC ENERGY (JOULES) AMBIENT       *
  * EPINA: DISSIPATION RATE OF TURBULENT KE (JOULES) AMB   *
  * P1: PRESSURE (NEWTONS/SQUARE METER)                    *
  * H1: ENTHALPY (JOULES/KG)                               *
  * U1: VELOCITY IN X-DIRECTION (METERS/SEC)               *
  * V1: VELOCITY IN Y-DIRECTION (METERS/SEC)               *
  * W1: VELOCITY IN Z-DIRECTION (METERS/SEC)               *
  * TMP1: TEMP OF THE FIRST PHASE (DEGREES KELVIN)         *
  * RHO1: DENSITY OF THE FIRST PHASE (KG/CUBIC METER)      *
  * PRESS0: REFERENCE ATMOSPHERIC PRESSURE (NEWTONS/SQ mtr)*
  * TMP1A: GROUND REF TEMP USED IN GRND2 (DEG KELVIN)      *
  * TMP1B: 1/CSUBP USED IN GRND2 EQU (KG-DEG KELVIN/JOULES)*
  * DRH1DP: DELTA RHO/DELTA PRESSURE W/RESPECT TO H1       *
  * FACT: CORRECTION OR "FUDGE" FACTOR                     *
  * ENUL: LAMINAR KINEMATIC VISCOSITY (METERS SQ/SEC)      *
  * ENUT: TURBULENT KINEMATIC VISCOSITY (METERS SQ/SEC)    *
  ****************************************************************

  GROUP 1. RUN TITLE AND OTHER PRELIMINARIES
TEXT(NAS JACKSONVILLE HUSH CHAMBER)
REAL(WJET,MJET,TJET,PJET,RHOJET,HJET,KEJET,GASCON,CSUBP,TAMB)
REAL(HAMB,KEINJ,EPINJ,KEINA,EPINA)

  GROUP 2. TRANSIENCE; TIME-STEP SPECIFICATION (DEFAULT=STEADY)

  GROUP 3. X-DIRECTION GRID SPECIFICATION
NX=10
XFRAC(1)=-1  ; XFRAC(2)=0.31
XFRAC(3)=4   ; XFRAC(4)=0.5475
XFRAC(5)=3   ; XFRAC(6)=2.0
XFRAC(7)=2   ; XFRAC(8)=1.4
```

```
  GROUP 4. Y-DIRECTION GRID SPECIFICATION
NY=12
YFRAC(1)=-3   ; YFRAC(2)=0.562
YFRAC(3)=2    ; YFRAC(4)=0.314
YFRAC(5)=3    ; YFRAC(6)=0.562
YFRAC(7)=4    ; YFRAC(8)=0.75

  GROUP 5. Z-DIRECTION GRID SPECIFICATION
NZ=40
ZFRAC(1)=-1   ; ZFRAC(2)=1.0
ZFRAC(3)=1    ; ZFRAC(4)=1.7
ZFRAC(5)=1    ; ZFRAC(6)=2.0
ZFRAC(7)=1    ; ZFRAC(8)=1.7
ZFRAC(9)=2    ; ZFRAC(10)=3.0
ZFRAC(11)=1   ; ZFRAC(12)=1.5
ZFRAC(13)=1   ; ZFRAC(14)=1.0
ZFRAC(15)=1   ; ZFRAC(16)=1.7
ZFRAC(17)=2   ; ZFRAC(18)=1.0
ZFRAC(19)=1   ; ZFRAC(20)=1.7
ZFRAC(21)=2   ; ZFRAC(22)=1.0
ZFRAC(23)=3   ; ZFRAC(24)=0.566666
ZFRAC(25)=2   ; ZFRAC(26)=0.35
ZFRAC(27)=7   ; ZFRAC(28)=3.0
ZFRAC(29)=1   ; ZFRAC(30)=2.0
ZFRAC(31)=4   ; ZFRAC(32)=0.75
ZFRAC(33)=4   ; ZFRAC(34)=0.575
ZFRAC(35)=4   ; ZFRAC(36)=0.5
ZFRAC(37)=1   ; ZFRAC(38)=3.0

  GROUP 6. BODY-FITTED COORDINATES OR GRID DISTORTION

  GROUP 7. VARIABLES STORED, SOLVED & NAMED
SOLVE(P1,H1,U1,V1,W1)
SOLUTN(P1,Y,Y,Y,N,N,N)
STORE(TMP1,RHO1)

  GROUP 8. TERMS (IN DIFFERENTIAL EQUATIONS) & DEVICES

  GROUP 9. PROPERTIES OF THE MEDIUM
TAMB=295.
TJET=1944.
PJET=0.
MJET=197.72
PRESSO=101325.
RHO1A=0.
GASCON=286.
RHO1B=1./GASCON
RHOJET=((PRESSO+PJET)*RHO1B)/TJET
WJET=MJET/RHOJET
TMP1A=TINY
   *** TMP1B = 1. DIVIDED BY C-SUB-P; USED IN TMP1=GRND5
CSUBP=1004.
HAMB=TAMB*CSUBP
TMP1B=1./CSUBP
HJET=CSUBP*TJET
```

```
  ** NEXT 2 STATEMENTS INVOKE COMPRESSIBLE FLOW IN GREX1
TMP1=GRND2
RHO1=GRND5
DRH1DP=GRND5
ENUL=1.E-05
ENUT=200.*ENUL
TURMOD(KEMODL)
STORE(VIST)
KEINJ=0.5*(0.005*WJET)**2 ; EPINJ=0.09*KEINJ**1.5/(0.05*0.5)
KEINA=0.5*(.005*1.0)**2 ; EPINA=0.09*KEINA**1.5/(0.1)

  GROUP 10. INTER-PHASE-TRANSFER PROCESSES AND PROPERTIES

  GROUP 11. INITIALIZATION OF VARIABLE OR POROSITY FIELDS
FIINIT(H1)=HAMB
FIINIT(TMP1)=TAMB ; FIINIT(DEN1)=1.0
FIINIT(KE)=KEINA ; FIINIT(EP)=EPINA
FIINIT(P1)=0.0
FIINIT(W1)=0.0
FIINIT(V1)=0.0
FIINIT(U1)=0.0
    PATCH(WINIT,INIVAL,1,5,1,8,15,30,1,1)
    INIT(WINIT,W1,0.0,0.2*WJET)
    INIT(WINIT,H1,0.0,CSUBP*0.2*TJET)
    INIT(WINIT,KE,0.0,KEINJ*0.2)
    INIT(WINIT,EP,0.0,EPINJ*0.2)
  *** SEE GROUP 13 FOR POROSITY FIELDS

  GROUP 12. CONVECTION AND DIFFUSION ADJUSTMENTS

  GROUP 13. BOUNDARY CONDITIONS AND SPECIAL SOURCES
   **DEFINE SOURCES AND SINKS FOR JET ENGINE**
CONPOR(0.0,CELL,1,1,4,5,12,14)
PATCH(JETIN,HIGH,1,1,4,5,11,11,1,1)
COVAL(JETIN,P1,FIXFLU,-MJET)
COVAL(JETIN,H1,ONLYMS,SAME)
PATCH(JETOUT,LOW,1,1,4,5,15,15,1,1)
COVAL(JETOUT,P1,FIXFLU,MJET)
COVAL(JETOUT,H1,ONLYMS,HJET)
COVAL(JETOUT,W1,ONLYMS,WJET)
COVAL(JETOUT,KE,ONLYMS,KEINJ)
COVAL(JETOUT,EP,ONLYMS,EPINJ)

   **EAST BOUNDARY TO ATMOSPHERE**
PATCH(OUTSIDE,EAST,10,10,1,12,1,40,1,1)
COVAL(OUTSIDE,P1,0.1,0.0)
COVAL(OUTSIDE,H1,FIXVAL,HAMB)

   **TOP OF HUSH HOUSE AND TUBE INCLUDING TUBE LIP**
CONPOR(0.0,NORTH,1,9,12,12,1,19)
CONPOR(0.0,NORTH,1,5,-8,-8,18,27)
CONPOR(0.0,NORTH,1,5,-2,-2,35,35)
CONPOR(0.0,NORTH,1,5,-4,-4,36,36)
CONPOR(0.0,NORTH,1,5,-5,-5,37,37)
CONPOR(0.0,NORTH,1,5,-6,-6,38,38)
```

```
CONPOR(0.0,NORTH,1,5,-7,-7,39,39)

   **TOP OF MODEL TO ATMOSPHERE**
PATCH(TOPOUT,NORTH,1,10,12,12,20,40,1,1)
COVAL(TOPOUT,P1,0.1,0.0)
COVAL(TOPOUT,H1,ONLYMS,HAMB)
PATCH(TOPP,NORTH,10,10,12,12,1,19,1,1)
COVAL(TOPP,P1,0.1,0.0)
COVAL(TOPP,H1,ONLYMS,HAMB)

   **FLOOR OF HUSH HOUSE, TUBE AND GROUND**
CONPOR(0.0,SOUTH,1,10,1,-1,1,40)

   **FORE AND AFT BULKHEADS IN HUSH HOUSE AND TUBE**
CONPOR(0.0,LOW,1,9,1,12,-1,-1)
CONPOR(0.0,LOW,6,9,1,12,-20,-20)
CONPOR(0.0,LOW,1,5,9,12,-20,-20)
CONPOR(0.0,LOW,1,5,1,2,-35,-35)
CONPOR(0.0,LOW,1,5,3,4,-36,-36)
CONPOR(0.0,LOW,1,5,5,5,-37,-37)
CONPOR(0.0,LOW,1,5,6,6,-38,-38)
CONPOR(0.0,LOW,1,5,7,7,-39,-39)
CONPOR(0.0,HIGH,1,5,8,8,-39,-39)

   **VERY FRONT MODEL STRIP TO ATMOSPHERE**
PATCH(FRONT,LOW,10,10,1,12,1,1,1,1)
COVAL(FRONT,P1,0.1,0.0)
COVAL(FRONT,H1,ONLYMS,HAMB)

   **THE VERY END OF OUR MODEL TO ATMOSPHERE**
PATCH(ENDEND,HIGH,1,10,1,12,40,40,1,1)
COVAL(ENDEND,P1,0.1,0.0)
COVAL(ENDEND,H1,ONLYMS,HAMB)

   **OUTSIDE EAST WALL IN HUSH HOUSE**
CONPOR(0.0,EAST,-9,-9,9,12,1,19)
CONPOR(0.0,EAST,-9,-9,1,8,1,1)
CONPOR(0.0,EAST,-9,-9,1,8,3,3)
CONPOR(0.0,EAST,-9,-9,1,8,5,8)
CONPOR(0.0,EAST,-9,-9,1,8,10,11)
CONPOR(0.0,EAST,-9,-9,1,8,13,14)
CONPOR(0.0,EAST,-9,-9,1,8,18,19)

   **OUTSIDE OF TUBE PLUS TUBE LIP IN HUSH HOUSE**
CONPOR(0.0,EAST,-5,-5,1,8,18,39)

  GROUP 14. DOWNSTREAM PRESSURE FOR PARAB=.TRUE.

  GROUP 15. TERMINATION OF SWEEPS
FSWEEP=1; LSWEEP=180

  GROUP 16. TERMINATION OF ITERATIONS

  GROUP 17. UNDER-RELAXATION DEVICES
REAL(DELT,FACT)
```

```
DELT=50.0/(NZ*0.2*WJET)
    FACT=10.
    FACT=2.5
FACT=0.75
    FACT=3.5
    FACT=5.
    FACT=0.50
    FACT=0.25
RELAX(P1,LINRLX,0.3)
RELAX(U1,FALSDT,FACT*DELT)
RELAX(V1,FALSDT,FACT*DELT)
RELAX(W1,FALSDT,FACT*DELT)
RELAX(H1,FALSDT,2.5*FACT*DELT)
RELAX(KE,FALSDT,FACT*DELT)
RELAX(EP,FALSDT,FACT*DELT)

  GROUP 18. LIMITS ON VARIABLES OR INCREMENTS TO THEM
VARMIN(U1)=-300.
VARMAX(U1)=1000.
VARMIN(V1)=-300.
VARMAX(V1)=1000.
VARMIN(W1)=-100.
VARMAX(W1)=1500.
VARMIN(TMP1)=250
VARMAX(TMP1)=TJET
VARMIN(H1)=1000.
VARMAX(H1)=CSUBP*TJET
VARMIN(P1)=-3.5E+05
VARMAX(P1)= 3.5E+05
VARMIN(RHO1)=.05
VARMAX(RHO1)=5.
   VARMIN(KE)=1.E-08
   VARMAX(KE)=1.3*KEJET
   VARMIN(EP)=1.E-08
   VARMIN(VIST)=0.1
   VARMAX(EP)=1.3*(KEJET**1.5)

  GROUP 19. DATA COMMUNICATED BY SATELLITE TO GROUND

  GROUP 20. PRELIMINARY PRINT-OUT

  GROUP 21. PRINT-OUT OF VARIABLES

  GROUP 22. SPOT-VALUE PRINT-OUT
    **MONITOR THE OUTPUT AT DESIGNATED POINTS**
IXMON=1 ; IYMON=4 ; IZMON=16
TSTSWP=1 ; LUPR3=6
ABSIZ=1.0 ; ORSIZ=1.0

  GROUP 23. FIELD PRINT-OUT AND PLOT CONTROL
NUMCLS=10*NXPRIN
ITABL=3 ; NPLT=1 ; NZPRIN=1
IPLTL=LSWEEP
    NPRINT=3
```

```
  GROUP 24. DUMPS FOR RESTARTS
SAVE=T
RESTRT(ALL)
STOP
```

APPENDIX B
SELECTED PHOENICS OUTPUT

```
************************************************************

 ----------------------------------------------------------
       CCCC HHH        PHOENICS  VERSION 1.3, 03 SEPT 1986
     CCCCCCCC HHHHH    (C) COPYRIGHT 1984
   CCCCCCC HHHHHHHHHH  CONCENTRATION HEAT AND MOMENTUM LTD
  CCCCCCC HHHHHHHHHHH  ALL RIGHTS RESERVED.
  CCCCCC HHHHHHHHHHHH  CHAM LTD, BAKERY HOUSE, 40 HIGH ST
  CCCCCCC HHHHHHHHHHH  WIMBLEDON, LONDON, SW19 5AU
   CCCCCCC HHHHHHHHHH  TEL: 01-947-7651; TELEX: 928517
     CCCCCCCC HHHHH    FACSIMILE: 01-879-3497
       CCCC HHH        THE OPTION LEVEL IS   -18
 ----------------------------------------------------------

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 OF A LICENCE AGREEMENT WITH CHAM LTD.

 REPLICATION OF THIS CODE IS PROHIBITED UNLESS


 SPECIFICALLY AUTHORISED IN WRITING BY CHAM LTD.

************************************************************

GREX1 OF 15/07/86 HAS BEEN CALLED
FORMATTED SATLIT DATA READ FROM DF10 FOR IRUN=  1
***------ STORAGE INFORMATION ------***
F DIMNSN=200000 OCCUPIED=123707 ESTIMATED MINIMUM DIMNSN= 23267
DEP VRBL= 67200 OLD VRBL=      0 3D COEFF= 23880 3D DVDPS= 14400

INITIAL FIELDS READ FROM DF09
************************************************************
 GROUP 1. RUN TITLE & NUMBER
************************************************************
************************************************************

TEXT(NAS JACKSONVILLE HUSH CHAMBER             )

************************************************************
************************************************************

IRUNN   =      1
************************************************************
 GROUP 2. TRANSIENCE
STEADY  =    T
************************************************************
 GROUP 3. X-DIRECTION GRID SPACING
CARTES  =    T
NX      =    10
XULAST  = 1.000E+00
  METHOD OF PAIRS USED FOR GRID SETTING
XFRAC (  1) = -1.000E+00 ;XFRAC (  2) =  3.100E-01
XFRAC (  3) =  4.000E+00 ;XFRAC (  4) =  5.475E-01
XFRAC (  5) =  3.000E+00 ;XFRAC (  6) =  2.000E+00
XFRAC (  7) =  2.000E+00 ;XFRAC (  8) =  1.400E+00
************************************************************
 GROUP 4. Y-DIRECTION GRID SPACING
NY      =    12
YVLAST  = 1.000E+00
  METHOD OF PAIRS USED FOR GRID SETTING
```

```
YFRAC (  1) = -3.000E+00 ;YFRAC (  2) =  5.620E-01
YFRAC (  3) =  2.000E+00 ;YFRAC (  4) =  3.140E-01
YFRAC (  5) =  3.000E+00 ;YFRAC (  6) =  5.620E-01
YFRAC (  7) =  4.000E+00 ;YFRAC (  8) =  7.500E-01
************************************************************
 GROUP 5. Z-DIRECTION GRID SPACING
PARAB   =     F
NZ      =    40
ZWLAST  = 1.000E+00
  METHOD OF PAIRS USED FOR GRID SETTING
ZFRAC (  1) = -1.000E+00 ;ZFRAC (  2) =  1.000E+00
ZFRAC (  3) =  1.000E+00 ;ZFRAC (  4) =  1.700E+00
ZFRAC (  5) =  1.000E+00 ;ZFRAC (  6) =  2.000E+00
ZFRAC (  7) =  1.000E+00 ;ZFRAC (  8) =  1.700E+00
ZFRAC (  9) =  2.000E+00 ;ZFRAC ( 10) =  3.000E+00
ZFRAC ( 11) =  1.000E+00 ;ZFRAC ( 12) =  1.500E+00
ZFRAC ( 13) =  1.000E+00 ;ZFRAC ( 14) =  1.000E+00
ZFRAC ( 15) =  1.000E+00 ;ZFRAC ( 16) =  1.700E+00
ZFRAC ( 17) =  2.000E+00 ;ZFRAC ( 18) =  1.000E+00
ZFRAC ( 19) =  1.000E+00 ;ZFRAC ( 20) =  1.700E+00
ZFRAC ( 21) =  2.000E+00 ;ZFRAC ( 22) =  1.000E+00
ZFRAC ( 23) =  3.000E+00 ;ZFRAC ( 24) =  5.667E-01
ZFRAC ( 25) =  2.000E+00 ;ZFRAC ( 26) =  3.500E-01
ZFRAC ( 27) =  7.000E+00 ;ZFRAC ( 28) =  3.000E+00
ZFRAC ( 29) =  1.000E+00 ;ZFRAC ( 30) =  2.000E+00
ZFRAC ( 31) =  4.000E+00 ;ZFRAC ( 32) =  7.500E-01
ZFRAC ( 33) =  4.000E+00 ;ZFRAC ( 34) =  5.750E-01
ZFRAC ( 35) =  4.000E+00 ;ZFRAC ( 36) =  5.000E-01
ZFRAC ( 37) =  1.000E+00 ;ZFRAC ( 38) =  3.000E+00
************************************************************
 GROUP 6. BFC AND GEOMETRY CHANGES
************************************************************
 GROUP 7. VARIABLES: STORED,SOLVED,NAMED
ONEPHS  =     T
NAME( 1) =P1    ;NAME( 3) =U1
NAME( 5) =V1    ;NAME( 7) =W1
NAME(12) =KE    ;NAME(13) =EP
NAME(14) =H1    ;NAME(19) =HPOR
NAME(20) =NPOR  ;NAME(21) =EPOR
NAME(22) =VPOR  ;NAME(23) =VIST
```

```
NAME(24) =RHO1 ;NAME(25) =TMP1
SOLUTN(P1   ,Y,Y,Y,N,N,N)
SOLUTN(U1   ,Y,Y,N,N,N,N)
SOLUTN(V1   ,Y,Y,N,N,N,N)
SOLUTN(W1   ,Y,Y,N,N,N,N)
SOLUTN(KE   ,Y,Y,N,N,N,N)
SOLUTN(EP   ,Y,Y,N,N,N,N)
SOLUTN(H1   ,Y,Y,N,N,N,N)
SOLUTN(HPOR,Y,N,N,N,N,N)
SOLUTN(NPOR,Y,N,N,N,N,N)
SOLUTN(EPOR,Y,N,N,N,N,N)
SOLUTN(VPOR,Y,N,N,N,N,N)
SOLUTN(VIST,Y,N,N,N,N,N)
SOLUTN(RHO1,Y,N,N,N,N,N)
SOLUTN(TMP1,Y,N,N,N,N,N)
DEN1     =     24
VIST     =     23
EPOR     =     21 ;HPOR    =     19 ;NPOR    =     20 ;VPOR    =     22
TEMP1    =     25
************************************************************
 GROUP 8. TERMS  & DEVICES
TERMS (P1   ,Y,Y,Y,N,Y,N)
TERMS (U1   ,Y,Y,Y,N,Y,N)
TERMS (V1   ,Y,Y,Y,N,Y,N)
TERMS (W1   ,Y,Y,Y,N,Y,N)
TERMS (KE   ,N,Y,Y,N,Y,N)
TERMS (EP   ,N,Y,Y,N,Y,N)
TERMS (H1   ,Y,Y,Y,N,Y,N)
DIFCUT   = 5.000E-01 ;ZDIFAC = 1.000E+00
GALA     =     F  ;ADDDIF =     F
NEWRH1   =     T
NEWENT   =     T
************************************************************
 GROUP 9. PROPERTIES
RHO1     =-1.016E+04 ;TMP1    =-1.013E+04 ;EL1     =-1.015E+04
RHO1A    = 0.000E+00 ;RHO1B   = 3.496E-03 ;RHO1C   = 7.143E-01
PRESS0   = 1.013E+05
TMP1A    = 1.000E-20 ;TMP1B   = 9.960E-04 ;TMP1C   = 0.000E+00
TEMP0    = 0.000E+00
EL1A     = 0.000E+00 ,EL1B    = 0.000E+00 ;EL1C    = 0.000E+00
```

```
ENUL     = 1.000E-05 ;ENUT    =-1.014E+04
ENUTA    = 0.000E+00 ;ENUTB   = 0.000E+00 ;ENUTC   = 0.000E+00
DRH1DP   =-1.016E+04
PRNDTL(U1   ) =  1.000E+00 ;PRNDTL(V1   ) =  1.000E+00
PRNDTL(W1   ) =  1.000E+00 ;PRNDTL(KE   ) =  1.000E+00
PRNDTL(EP   ) =  1.000E+00 ;PRNDTL(H1   ) =  1.000E+00
PRT    (U1   ) =  1.000E+00 ;PRT    (V1   ) =  1.000E+00
PRT    (W1   ) =  1.000E+00 ;PRT    (KE   ) =  1.000E+00
PRT    (EP   ) =  1.314E+00 ;PRT    (H1   ) =  1.000E+00
*****************************************************************
 GROUP 10.INTER-PHASE TRANSFER PROCESSES
*****************************************************************
 GROUP 11.INITIALIZE VAR/POROSITY FIELDS
FIINIT(P1   ) = -1.022E+04 ;FIINIT(U1   ) = -1.022E+04
FIINIT(V1   ) = -1.022E+04 ;FIINIT(W1   ) = -1.022E+04
FIINIT(KE   ) = -1.022E+04 ;FIINIT(EP   ) = -1.022E+04
FIINIT(H1   ) = -1.022E+04 ;FIINIT(HPOR) = -1.022E+04
FIINIT(NPOR) = -1.022E+04 ;FIINIT(EPOR) = -1.022E+04
FIINIT(VPOR) = -1.022E+04 ;FIINIT(VIST) = -1.022E+04
FIINIT(RHO1) = -1.022E+04 ;FIINIT(TMP1) = -1.022E+04

PATCH(SOUTH1   ,INIVAL,   1,   1,   3,   3,  12,  14,   1,   1)
INIT(SOUTH1   ,V1  , 0.000E+00, 0.000E+00)
INIT(SOUTH1   ,NPOR, 0.000E+00, 0.000E+00)

PATCH(LOW1     ,INIVAL,   1,   1,   4,   5,  11,  11,   1,   1)
INIT(LOW1     ,W1  , 0.000E+00, 0.000E+00)
INIT(LOW1     ,HPOR, 0.000E+00, 0.000E+00)

PATCH(CELL1    ,INIVAL,   1,   1,   4,   5,  12,  14,   1,   1)
INIT(CELL1    ,P1  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,U1  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,V1  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,W1  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,KE  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,EP  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,H1  , 0.000E+00, 0.000E+00)
INIT(CELL1    ,HPOR, 0.000E+00, 0.000E+00)
INIT(CELL1    ,NPOR, 0.000E+00, 0.000E+00)
INIT(CELL1    ,EPOR, 0.000E+00, 0.000E+00)
```

```
PATCH(EAST21  ,INIVAL,   9,   9,   1,   8,   3,   3,   1,   1)
INIT(EAST21  ,U1  , 0.000E+00, 0.000E+00)
INIT(EAST21  ,EPOR, 0.000E+00, 0.000E+00)

PATCH(EAST22  ,INIVAL,   9,   9,   1,   8,   5,   8,   1,   1)
INIT(EAST22  ,U1  , 0.000E+00, 0.000E+00)
INIT(EAST22  ,EPOR, 0.000E+00, 0.000E+00)

PATCH(EAST23  ,INIVAL,   9,   9,   1,   8,  10,  11,   1,   1)
INIT(EAST23  ,U1  , 0.000E+00, 0.000E+00)
INIT(EAST23  ,EPOR, 0.000E+00, 0.000E+00)

PATCH(EAST24  ,INIVAL,   9,   9,   1,   8,  13,  14,   1,   1)
INIT(EAST24  ,U1  , 0.000E+00, 0.000E+00)
INIT(EAST24  ,EPOR, 0.000E+00, 0.000E+00)

PATCH(EAST25  ,INIVAL,   9,   9,   1,   8,  18,  19,   1,   1)
INIT(EAST25  ,U1  , 0.000E+00, 0.000E+00)
INIT(EAST25  ,EPOR, 0.000E+00, 0.000E+00)

PATCH(EAST26  ,INIVAL,   5,   5,   1,   8,  18,  39,   1,   1)
INIT(EAST26  ,U1  , 0.000E+00, 0.000E+00)
INIT(EAST26  ,EPOR, 0.000E+00, 0.000E+00)
INIADD  =    F
LUFI    =     9
NAMFI   =DF09
************************************************************
 GROUP 13. BOUNDARY & SPECIAL SOURCES

PATCH(KESOURCE,PHASEM,   1,  10,   1,  12,   1,  40,   1,   1)
COVAL(KESOURCE,KE  ,-1.015E+04,-1.015E+04)
COVAL(KESOURCE,EP  ,-1.015E+04,-1.015E+04)

PATCH(JETIN   ,HIGH  ,   1,   1,   4,   5,  11,  11,   1,   1)
COVAL(JETIN   ,P1  , 1.000E-10,-1.977E+02)
COVAL(JETIN   ,H1  , 0.000E+00,-1.026E+04)

PATCH(JETOUT  ,LOW   ,   1,   1,   4,   5,  15,  15,   1,   1)
COVAL(JETOUT  ,P1  , 1.000E-10, 1.977E+02)
```

```
COVAL(HWALL12 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL12 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL12 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(HWALL12 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(LWALL12 ,LWALL ,   1,    5,    9,   12,   20,   20,    1,    1)
COVAL(LWALL12 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(LWALL12 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(LWALL12 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(LWALL12 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(HWALL13 ,HWALL ,   1,    5,    1,    2,   34,   34,    1,    1)
COVAL(HWALL13 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL13 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL13 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(HWALL13 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(LWALL13 ,LWALL ,   1,    5,    1,    2,   35,   35,    1,    1)
COVAL(LWALL13 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(LWALL13 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(LWALL13 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(LWALL13 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(HWALL14 ,HWALL ,   1,    5,    3,    4,   35,   35,    1,    1)
COVAL(HWALL14 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL14 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL14 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(HWALL14 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(LWALL14 ,LWALL ,   1,    5,    3,    4,   36,   36,    1,    1)
COVAL(LWALL14 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(LWALL14 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(LWALL14 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(LWALL14 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(HWALL15 ,HWALL ,   1,    5,    5,    5,   36,   36,    1,    1)
COVAL(HWALL15 ,U1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL15 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(HWALL15 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(HWALL15 ,EP  ,-1.013E+04,-1.013E+04)
```

```
PATCH(LWALL15 ,LWALL ,   1,   5,   5,   5,  37,  37,   1,   1)
COVAL(LWALL15 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL15 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL15 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(LWALL15 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(HWALL16 ,HWALL ,   1,   5,   6,   6,  37,  37,   1,   1)
COVAL(HWALL16 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(HWALL16 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(HWALL16 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(HWALL16 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(LWALL16 ,LWALL ,   1,   5,   6,   6,  38,  38,   1,   1)
COVAL(LWALL16 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL16 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL16 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(LWALL16 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(HWALL17 ,HWALL ,   1,   5,   7,   7,  38,  38,   1,   1)
COVAL(HWALL17 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(HWALL17 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(HWALL17 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(HWALL17 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(LWALL17 ,LWALL ,   1,   5,   7,   7,  39,  39,   1,   1)
COVAL(LWALL17 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL17 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL17 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(LWALL17 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(HWALL18 ,HWALL ,   1,   5,   8,   8,  39,  39,   1,   1)
COVAL(HWALL18 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(HWALL18 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(HWALL18 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(HWALL18 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(LWALL18 ,LWALL ,   1,   5,   8,   8,  40,  40,   1,   1)
COVAL(LWALL18 ,U1   ,-1.013E+04, 0.000E+00)
COVAL(LWALL18 ,V1   ,-1.013E+04, 0.000E+00)
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COVAL(LWALL18 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(LWALL18 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(FRONT   ,LOW   ,  10,  10,   1,  12,   1,   1,   1,   1)
COVAL(FRONT   ,P1   , 1.000E-01, 0.000E+00)
COVAL(FRONT   ,H1   , 0.000E+00, 2.962E+05)

PATCH(ENDEND  ,HIGH  ,   1,  10,   1,  12,  40,  40,   1,   1)
COVAL(ENDEND  ,P1   , 1.000E-01, 0.000E+00)
COVAL(ENDEND  ,H1   , 0.000E+00, 2.962E+05)

PATCH(EWALL19 ,EWALL ,   9,   9,   9,  12,   1,  19,   1,   1)
COVAL(EWALL19 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL19 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL19 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(EWALL19 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(WWALL19 ,WWALL ,  10,  10,   9,  12,   1,  19,   1,   1)
COVAL(WWALL19 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL19 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL19 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(WWALL19 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(EWALL20 ,EWALL ,   9,   9,   1,   8,   1,   1,   1,   1)
COVAL(EWALL20 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL20 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL20 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(EWALL20 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(WWALL20 ,WWALL ,  10,  10,   1,   8,   1,   1,   1,   1)
COVAL(WWALL20 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL20 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL20 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(WWALL20 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(EWALL21 ,EWALL ,   9,   9,   1,   8,   3,   3,   1,   1)
COVAL(EWALL21 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL21 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL21 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(EWALL21 ,EP   ,-1.013E+04,-1.013E+04)
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PATCH(WWALL21 ,WWALL ,  10,  10,   1,   8,   3,   3,   1,   1)
COVAL(WWALL21 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL21 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL21 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(WWALL21 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(EWALL22 ,EWALL ,   9,   9,   1,   8,   5,   8,   1,   1)
COVAL(EWALL22 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL22 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL22 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(EWALL22 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(WWALL22 ,WWALL ,  10,  10,   1,   8,   5,   8,   1,   1)
COVAL(WWALL22 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL22 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL22 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(WWALL22 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(EWALL23 ,EWALL ,   9,   9,   1,   8,  10,  11,   1,   1)
COVAL(EWALL23 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL23 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL23 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(EWALL23 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(WWALL23 ,WWALL ,  10,  10,   1,   8,  10,  11,   1,   1)
COVAL(WWALL23 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL23 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL23 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(WWALL23 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(EWALL24 ,EWALL ,   9,   9,   1,   8,  13,  14,   1,   1)
COVAL(EWALL24 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL24 ,W1   ,-1.013E+04, 0.000E+00)
COVAL(EWALL24 ,KE   ,-1.013E+04,-1.013E+04)
COVAL(EWALL24 ,EP   ,-1.013E+04,-1.013E+04)

PATCH(WWALL24 ,WWALL ,  10,  10,   1,   8,  13,  14,   1,   1)
COVAL(WWALL24 ,V1   ,-1.013E+04, 0.000E+00)
COVAL(WWALL24 ,W1   ,-1.013E+04, 0.000E+00)
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COVAL(WWALL24 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(WWALL24 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(EWALL25 ,EWALL ,  9,  9,  1,  8, 18, 19,  1,  1)
COVAL(EWALL25 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(EWALL25 ,W1  ,-1.013E+04, 0.000E+00)
COVAL(EWALL25 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(EWALL25 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(WWALL25 ,WWALL , 10, 10,  1,  8, 18, 19,  1,  1)
COVAL(WWALL25 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(WWALL25 ,W1  ,-1.013E+04, 0.000E+00)
COVAL(WWALL25 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(WWALL25 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(EWALL26 ,EWALL ,  5,  5,  1,  8, 18, 39,  1,  1)
COVAL(EWALL26 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(EWALL26 ,W1  ,-1.013E+04, 0.000E+00)
COVAL(EWALL26 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(EWALL26 ,EP  ,-1.013E+04,-1.013E+04)

PATCH(WWALL26 ,WWALL ,  6,  6,  1,  8, 18, 39,  1,  1)
COVAL(WWALL26 ,V1  ,-1.013E+04, 0.000E+00)
COVAL(WWALL26 ,W1  ,-1.013E+04, 0.000E+00)
COVAL(WWALL26 ,KE  ,-1.013E+04,-1.013E+04)
COVAL(WWALL26 ,EP  ,-1.013E+04,-1.013E+04)
XCYCLE  =    F
KELIN   =    0
************************************************************
 GROUP 14. DOWNSTREAM PRESSURE FOR PARAB
************************************************************
 GROUP 15. TERMINATE SWEEPS
LSWEEP  =    180 ;ISWC1  =      1
LITHYD  =      1 ;LITFLX =      1 ;LITC   =      1 ;ITHC1  =      1
RESREF(P1  ) =  1.000E-06 ;RESREF(U1  ) =  1.000E-06
RESREF(V1  ) =  1.000E-06 ;RESREF(W1  ) =  1.000E-06
RESREF(KE  ) =  1.000E-06 ;RESREF(EP  ) =  1.000E-06
RESREF(H1  ) =  1.000E-06
************************************************************
 GROUP 16. TERMINATE ITERATIONS
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LITER (P1   ) =    20 ;LITER (U1   ) =    20
LITER (V1   ) =    20 ;LITER (W1   ) =    20
LITER (KE   ) =    20 ;LITER (EP   ) =    20
LITER (H1   ) =    20
ENDIT (P1   ) =  1.000E-06 ;ENDIT (U1   ) =  1.000E-06
ENDIT (V1   ) =  1.000E-06 ;ENDIT (W1   ) =  1.000E-06
ENDIT (KE   ) =  1.000E-06 ;ENDIT (EP   ) =  1.000E-06
ENDIT (H1   ) =  1.000E-06
***********************************************************
 GROUP 17. RELAXATION
RELAX(P1  ,LINRLX, 3.000E-01)
RELAX(U1  ,FALSDT, 4.321E-03)
RELAX(V1  ,FALSDT, 4.321E-03)
RELAX(W1  ,FALSDT, 4.321E-03)
RELAX(KE  ,FALSDT, 4.321E-03)
RELAX(EP  ,FALSDT, 4.321E-03)
RELAX(H1  ,FALSDT, 1.080E-02)
RELAX(VIST,FALSDT, 1.000E+00)
RELAX(RHO1,FALSDT, 1.000E+00)
RELAX(TMP1,FALSDT, 1.000E+00)
***********************************************************
 GROUP 18. LIMITS
VARMAX(P1   ) = 3.500E+05 ;VARMIN(P1   ) =-3.500E+05
VARMAX(U1   ) = 1.000E+03 ;VARMIN(U1   ) =-3.000E+02
VARMAX(V1   ) = 1.000E+03 ;VARMIN(V1   ) =-3.000E+02
VARMAX(W1   ) = 1.500E+03 ;VARMIN(W1   ) =-1.000E+02
VARMAX(KE   ) = 1.000E+10 ;VARMIN(KE   ) = 1.000E-10
VARMAX(EP   ) = 1.000E+10 ;VARMIN(EP   ) = 1.000E-10
VARMAX(H1   ) = 1.952E+06 ;VARMIN(H1   ) = 1.000E+03
VARMAX(HPOR) = 1.000E+10 ;VARMIN(HPOR) =-1.000E+10
VARMAX(NPOR) = 1.000E+10 ;VARMIN(NPOR) =-1.000E+10
VARMAX(EPOR) = 1.000E+10 ;VARMIN(EPOR) =-1.000E+10
VARMAX(VPOR) = 1.000E+10 ;VARMIN(VPOR) =-1.000E+10
VARMAX(VIST) = 1.000E+10 ;VARMIN(VIST) = 1.000E-20
VARMAX(RHO1) = 5.000E+00 ;VARMIN(RHO1) = 5.000E-02
VARMAX(TMP1) = 1.944E+03 ;VARMIN(TMP1) = 2.500E+02
***********************************************************
 GROUP 19. EARTH CALLS TO GROUND STATION
USEGRD  =     T  ;USEGRX =     T
NAMGRD  =NONE
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GENK     =    T
************************************************************
 GROUP 20. PRELIMINARY PRINTOUT
ECHO     =    T
************************************************************
 GROUP 21. PRINT-OUT OF VARIABLES
INIFLD   =    F  ;SUBWGR =     F
OUTPUT(P1  ,Y,N,N,Y,Y,Y)
OUTPUT(U1  ,Y,N,N,Y,Y,Y)
OUTPUT(V1  ,Y,N,N,Y,Y,Y)
OUTPUT(W1  ,Y,N,N,Y,Y,Y)
OUTPUT(KE  ,Y,N,N,Y,Y,Y)
OUTPUT(EP  ,Y,N,N,Y,Y,Y)
OUTPUT(H1  ,Y,N,N,Y,Y,Y)
OUTPUT(HPOR,N,N,N,N,N,N)
OUTPUT(NPOR,N,N,N,N,N,N)
OUTPUT(EPOR,N,N,N,N,N,N)
OUTPUT(VPOR,N,N,N,N,N,N)
OUTPUT(VIST,Y,N,N,N,N,N)
OUTPUT(RHO1,Y,N,N,N,N,N)
OUTPUT(TMP1,Y,N,N,N,N,N)
************************************************************
 GROUP 22. MONITOR PRINT-OUT
IXMON    =      1 ;IYMON  =      4 ;IZMON  =     16
NPRMON   = 10000 ;NPRMNT = 10000 ;TSTSWP =      1
HIGHLO   =    F
************************************************************
 GROUP 23.FIELD PRINT-OUT & PLOT CONTROL
NPRINT   = 10000 ;NUMCLS =     10
NXPRIN   =      1 ;IXPRF  =      1 ;IXPRL  =     10
NYPRIN   =      1 ;IYPRF  =      1 ;IYPRL  =     12
NZPRIN   =      1 ;IZPRF  =      1 ;IZPRL  =     40
XZPR     =    F  ;YZPR   =     F
IPLTF    =      1 ;IPLTL  =    180 ;NPLT   =      1
ITABL    =      3 ;IPROF  =      1
ABSIZ    = 1.000E+00 ;ORSIZ  = 1.000E+00
NTZPRF   =      1 ;NCOLPF =     50
ICHR     =      2 ;NCOLCO =     45 ;NROWCO =     20
 NO PATCHES YET USED FOR THIS GROUP
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GROUP 24. DUMPS FOR RESTARTS
SAVE     =    T  ;AUTOPS =     F  ;NOWIPE =     F
NSAVE    =DF09
LUSAVE   =     9

*** GRID-GEOMETRY INFORMATION ***
X-COORDINATES OF THE CELL CENTRES
   1.550E-01   5.837E-01   1.131E+00   1.679E+00   2.226E+00
   3.500E+00   5.500E+00   7.500E+00   9.200E+00   1.060E+01
Y-COORDINATES OF THE CELL CENTRES
   2.810E-01   8.430E-01   1.405E+00   1.843E+00   2.157E+00
   2.595E+00   3.157E+00   3.719E+00   4.375E+00   5.125E+00
   5.875E+00   6.625E+00
Z-COORDINATES OF THE CELL CENTRES
   5.000E-01   1.850E+00   3.700E+00   5.550E+00   7.900E+00
   1.090E+01   1.315E+01   1.440E+01   1.575E+01   1.710E+01
   1.810E+01   1.945E+01   2.080E+01   2.180E+01   2.258E+01
   2.315E+01   2.372E+01   2.417E+01   2.452E+01   2.620E+01
   2.920E+01   3.220E+01   3.520E+01   3.820E+01   4.120E+01
   4.420E+01   4.670E+01   4.807E+01   4.882E+01   4.957E+01
   5.032E+01   5.099E+01   5.156E+01   5.214E+01   5.271E+01
   5.325E+01   5.375E+01   5.425E+01   5.475E+01   5.650E+01


--- INTEGRATION OF EQUATIONS BEGINS ---

TIME STEP =    1      SWEEP =    2
TOTAL RESIDUAL/( 1.000E-06) FOR P1   IS  8.007E+05
TOTAL RESIDUAL/( 1.000E-06) FOR U1   IS  9.092E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1   IS  1.282E+07
TOTAL RESIDUAL/( 1.000E-06) FOR W1   IS  2.376E+07
TOTAL RESIDUAL/( 1.000E-06) FOR KE   IS  1.210E+09
TOTAL RESIDUAL/( 1.000E-06) FOR EP   IS  1.496E+11
TOTAL RESIDUAL/( 1.000E-06) FOR H1   IS  5.642E+10
TIME STEP =    1      SWEEP =    3
TOTAL RESIDUAL/( 1.000E-06) FOR P1   IS  3.733E+05
TOTAL RESIDUAL/( 1.000E-06) FOR U1   IS  1.050E+07
TOTAL RESIDUAL/( 1.000E-06) FCR V1   IS  1.474E+07
TOTAL RESIDUAL/( 1.000E-06) FOR W1   IS  2.037E+07
TOTAL RESIDUAL/( 1.000E-06) FOR KE   IS  1.424E+09
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TOTAL RESIDUAL/( 1.000E-06) FOR EP    IS  2.341E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1    IS  2.620E+10
TIME STEP =   1      SWEEP = 174
TOTAL RESIDUAL/( 1.000E-06) FOR P1    IS  3.231E+04
TOTAL RESIDUAL/( 1.000E-06) FOR U1    IS  6.021E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1    IS  6.189E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1    IS  8.271E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE    IS  2.926E+08
TOTAL RESIDUAL/( 1.000E-06) FOR EP    IS  2.455E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1    IS  2.619E+10
TIME STEP =   1      SWEEP = 175
TOTAL RESIDUAL/( 1.000E-06) FOR P1    IS  3.208E+04
TOTAL RESIDUAL/( 1.000E-06) FOR U1    IS  5.996E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1    IS  6.183E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1    IS  8.329E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE    IS  2.915E+08
TOTAL RESIDUAL/( 1.000E-06) FOR EP    IS  2.393E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1    IS  2.628E+10
TIME STEP =   1      SWEEP = 176
TOTAL RESIDUAL/( 1.000E-06) FOR P1    IS  3.193E+04
TOTAL RESIDUAL/( 1.000E-06) FOR U1    IS  6.071E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1    IS  6.125E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1    IS  8.259E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE    IS  2.909E+08
TOTAL RESIDUAL/( 1.000E-06) FOR EP    IS  2.455E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1    IS  2.628E+10
TIME STEP =   1      SWEEP = 177
TOTAL RESIDUAL/( 1.000E-06) FOR P1    IS  3.235E+04
TOTAL RESIDUAL/( 1.000E-06) FOR U1    IS  6.038E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1    IS  6.128E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1    IS  8.291E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE    IS  2.934E+08
TOTAL RESIDUAL/( 1.000E-06) FOR EP    IS  2.466E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1    IS  2.622E+10
TIME STEP =   1      SWEEP = 178
TOTAL RESIDUAL/( 1.000E-06) FOR P1    IS  3.272E+04
TOTAL RESIDUAL/( 1.000E-06) FOR U1    IS  6.095E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1    IS  6.115E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1    IS  8.309E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE    IS  3.010E+08
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TOTAL RESIDUAL/( 1.000E-06) FOR EP   IS  2.607E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1   IS  2.635E+10
TIME STEP =   1     SWEEP = 179
TOTAL RESIDUAL/( 1.000E-06) FOR P1   IS  3.185E+04
TOTAL RESIDUAL/( 1.000E-06) FOR U1   IS  6.088E+06
TOTAL RESIDUAL/( 1.000E-06) FOR V1   IS  6.144E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1   IS  8.323E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE   IS  2.930E+08
TOTAL RESIDUAL/( 1.000E-06) FOR EP   IS  2.430E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1   IS  2.630E+10

*******************************************************
TIME STP=     1 SWEEP NO=   180 ZSLAB NO=     1 ITERN NO=     1

FLOW FIELD AT ITHYD=  1, IZ=  1, ISWEEP= 180, ISTEP=   1
```

FIELD VALUES OF P1

IY= 12	-1.093E+02	-1.104E+02	-1.158E+02	-1.196E+02	-1.223E+02	-1.301E+02	-1.511E+02	-1.709E+02	-1.698E+02	-6.164E+00
IY= 11	-1.151E+02	-1.170E+02	-1.210E+02	-1.236E+02	-1.258E+02	-1.345E+02	-1.555E+02	-1.729E+02	-1.720E+02	-8.249E+00
IY= 10	-1.178E+02	-1.209E+02	-1.250E+02	-1.266E+02	-1.284E+02	-1.375E+02	-1.583E+02	-1.736E+02	-1.727E+02	-1.063E+01
IY= 9	-1.175E+02	-1.219E+02	-1.259E+02	-1.266E+02	-1.281E+02	-1.384E+02	-1.583E+02	-1.723E+02	-1.724E+02	-1.426E+01
IY= 8	-1.158E+02	-1.210E+02	-1.248E+02	-1.247E+02	-1.262E+02	-1.371E+02	-1.553E+02	-1.676E+02	-1.702E+02	-1.896E+01
IY= 7	-1.139E+02	-1.194E+02	-1.230E+02	-1.224E+02	-1.236E+02	-1.346E+02	-1.504E+02	-1.596E+02	-1.671E+02	-2.273E+01
IY= 6	-1.126E+02	-1.179E+02	-1.213E+02	-1.203E+02	-1.211E+02	-1.319E+02	-1.448E+02	-1.503E+02	-1.626E+02	-2.552E+01
IY= 5	-1.122E+02	-1.172E+02	-1.204E+02	-1.194E+02	-1.200E+02	-1.305E+02	-1.417E+02	-1.450E+02	-1.589E+02	-2.671E+01
IY= 4	-1.122E+02	-1.167E+02	-1.197E+02	-1.186E+02	-1.191E+02	-1.294E+02	-1.396E+02	-1.418E+02	-1.564E+02	-2.751E+01
IY= 3	-1.125E+02	-1.164E+02	-1.189E+02	-1.178E+02	-1.179E+02	-1.278E+02	-1.371E+02	-1.385E+02	-1.537E+02	-2.840E+01
IY= 2	-1.126E+02	-1.160E+02	-1.184E+02	-1.173E+02	-1.169E+02	-1.268E+02	-1.354E+02	-1.363E+02	-1.515E+02	-2.885E+01
IY= 1	-1.120E+02	-1.156E+02	-1.183E+02	-1.172E+02	-1.164E+02	-1.267E+02	-1.350E+02	-1.355E+02	-1.506E+02	-2.902E+01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	1.843E+00	3.239E+00	3.780E+00	3.868E+00	3.816E+00	3.785E+00	3.668E+00	2.891E+00	1.864E-08
IY= 11	1.506E+00	2.568E+00	2.734E+00	2.438E+00	2.074E+00	9.460E-01	2.056E-01	-1.517E-01	6.980E-10
IY= 10	1.389E+00	2.151E+00	1.938E+00	1.333E+00	7.735E-01	-1.037E+00	-1.846E+00	-1.340E+00	-1.684E-10
IY= 9	1.259E+00	1.740E+00	1.259E+00	4.771E-01	-2.965E-01	-2.438E+00	-3.313E+00	-2.427E+00	-1.081E-10
IY= 8	1.063E+00	1.345E+00	7.410E-01	-1.501E-01	-1.039E+00	-3.586E+00	-4.650E+00	-3.672E+00	-3.803E-06
IY= 7	1.013E+00	1.213E+00	5.687E-01	-4.127E-01	-1.367E+00	-4.284E+00	-5.640E+00	-4.753E+00	-1.027E-05
IY= 6	1.049E+00	1.239E+00	5.623E-01	-4.902E-01	-1.478E+00	-4.647E+00	-6.157E+00	-5.225E+00	-1.500E-05
IY= 5	1.226E+00	1.411E+00	6.997E-01	-3.908E-01	-1.373E+00	-4.594E+00	-6.070E+00	-5.119E+00	-1.324E-05
IY= 4	1.221E+00	1.442E+00	7.325E-01	-3.451E-01	-1.293E+00	-4.481E+00	-5.828E+00	-4.774E+00	-1.280E-05

IY= 3	1.145E+00	1.436E+00	7.739E-01	-2.917E-01	-1.220E+00	-4.396E+00	-5.608E+00	-4.387E+00	-1.594E-05	
IY= 2	1.270E+00	1.660E+00	1.056E+00	-4.633E-03	-1.031E+00	-4.286E+00	-5.403E+00	-4.105E+00	-1.529E-05	
IY= 1	1.488E+00	1.932E+00	1.396E+00	5.419E-01	-8.283E-01	-4.224E+00	-5.297E+00	-3.979E+00	-1.516E-05	
IX=	1	2	3	4	5	6	7	8	9	

FIELD VALUES OF V1

IY= 11	3.027E+00	2.155E+00	1.746E+00	1.643E+00	1.913E+00	2.338E+00	2.321E+00	1.333E+00	-1.346E+00	-1.174E+00
IY= 10	4.260E+00	3.417E+00	2.924E+00	2.899E+00	3.434E+00	3.711E+00	3.552E+00	1.902E+00	-1.870E+00	-1.510E+00
IY= 9	4.579E+00	3.848E+00	3.460E+00	3.637E+00	4.357E+00	4.381E+00	4.292E+00	2.643E+00	-1.060E+00	-1.844E+00
IY= 8	4.125E+00	3.623E+00	3.379E+00	3.758E+00	4.511E+00	4.564E+00	4.649E+00	3.336E+00	-1.039E+00	-2.156E+00
IY= 7	3.226E+00	3.046E+00	2.958E+00	3.445E+00	4.180E+00	4.300E+00	4.480E+00	3.501E+00	-2.070E-01	-2.029E+00
IY= 6	2.136E+00	2.281E+00	2.366E+00	2.876E+00	3.590E+00	3.741E+00	3.902E+00	3.173E+00	4.528E-01	-1.600E+00
IY= 5	1.124E+00	1.499E+00	1.704E+00	2.169E+00	2.877E+00	3.012E+00	3.093E+00	2.554E+00	7.993E-01	-1.056E+00
IY= 4	7.503E-01	1.096E+00	1.343E+00	1.769E+00	2.486E+00	2.587E+00	2.613E+00	2.147E+00	8.519E-01	-7.646E-01
IY= 3	4.557E-01	7.618E-01	1.014E+00	1.400E+00	2.136E+00	2.184E+00	2.169E+00	1.768E+00	8.179E-01	-5.110E-01
IY= 2	4.904E-03	3.442E-01	5.346E-01	7.940E-01	1.568E+00	1.491E+00	1.444E+00	1.182E+00	6.513E-01	-2.106E-01
IY= 1	-1.160E-01	1.610E-01	2.053E-01	2.613E-01	9.503E-01	7.822E-01	7.406E-01	6.124E-01	3.726E-01	-5.616E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	-1.905E+00	3.226E-01	1.340E+00	2.028E+00	2.643E+00	3.130E+00	3.151E+00	2.164E+00	2.698E-01	1.778E-09
IY= 11	-3.212E+00	-2.555E-01	1.265E+00	2.214E+00	2.692E+00	2.393E+00	2.010E+00	9.362E-01	-8.058E-01	7.297E-01
IY= 10	-4.052E+00	-8.163E-01	1.104E+00	2.087E+00	2.249E+00	1.797E+00	1.388E+00	7.348E-01	-9.432E-01	1.070E+00
IY= 9	-4.661E+00	-1.177E+00	7.699E-01	1.588E+00	1.616E+00	1.313E+00	9.128E-01	4.812E-01	-6.391E-01	1.620E+00
IY= 8	-5.023E+00	-1.541E+00	3.538E-01	1.071E+00	1.034E+00	8.024E-01	2.310E-01	-1.953E-01	-1.141E+00	2.931E+00
IY= 7	-5.203E+00	-1.726E+00	1.227E-01	7.789E-01	6.931E-01	4.650E-01	-3.498E-01	-1.026E+00	-2.219E+00	4.006E+00
IY= 6	-5.180E+00	-1.736E+00	5.869E-02	6.635E-01	5.351E-01	2.859E-01	-6.833E-01	-1.566E+00	-3.113E+00	4.609E+00
IY= 5	-5.141E+00	-1.621E+00	1.499E-01	7.182E-01	5.489E-01	2.581E-01	-7.903E-01	-1.770E+00	-3.487E+00	4.741E+00
IY= 4	-4.876E+00	-1.466E+00	2.485E-01	7.945E-01	6.180E-01	3.102E-01	-7.391E-01	-1.732E+00	-3.516E+00	4.734E+00
IY= 3	-4.493E+00	-1.273E+00	3.551E-01	8.666E-01	6.853E-01	3.538E-01	-6.826E-01	-1.653E+00	-3.428E+00	4.587E+00
IY= 2	-4.308E+00	-1.037E+00	5.168E-01	9.881E-01	7.743E-01	3.664E-01	-6.932E-01	-1.661E+00	-3.425E+00	4.393E+00
IY= 1	-4.589E+00	-1.097E+00	6.131E-01	1.094E+00	8.110E-01	3.057E-01	-7.804E-01	-1.748E+00	-3.502E+00	4.243E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF KE

IY= 12	6.487E-02	5.793E-02	7.807E-02	8.714E-02	9.220E-02	9.902E-02	9.611E-02	6.474E-02	1.653E-02	8.115E-03
IY= 11	7.889E-02	6.180E-02	6.450E-02	6.148E-02	6.334E-02	5.949E-02	4.759E-02	1.546E-02	1.651E-02	1.312E-02
IY= 10	1.061E-01	8.253E-02	7.339E-02	6.862E-02	8.233E-02	8.281E-02	8.777E-02	4.144E-02	2.284E-02	2.129E-02
IY= 9	1.018E-01	8.194E-02	7.139E-02	7.365E-02	9.790E-02	1.080E-01	1.366E-01	8.644E-02	1.729E-02	3.413E-02
IY= 8	7.466E-02	6.492E-02	5.806E-02	6.724E-02	9.593E-02	1.220E-01	1.785E-01	1.399E-01	1.565E-02	6.324E-02
IY= 7	4.397E-02	4.454E-02	4.232E-02	5.263E-02	8.048E-02	1.182E-01	1.975E-01	1.800E-01	2.868E-02	9.132E-02
IY= 6	2.150E-02	2.731E-02	2.767E-02	3.481E-02	5.948E-02	1.030E-01	1.942E-01	1.906E-01	4.462E-02	1.072E-01
IY= 5	1.419E-02	1.975E-02	1.981E-02	2.225E-02	4.276E-02	8.444E-02	1.732E-01	1.743E-01	5.089E-02	1.084E-01

IY= 4	1.130E-02	1.556E-02	1.521E-02	1.509E-02	3.304E-02	7.180E-02	1.544E-01	1.529E-01	4.930E-02	1.063E-01
IY= 3	8.545E-03	1.194E-02	1.111E-02	7.959E-03	2.278E-02	5.871E-02	1.367E-01	1.317E-01	4.494E-02	9.925E-02
IY= 2	9.964E-03	1.325E-02	1.199E-02	3.774E-03	1.129E-02	4.467E-02	1.205E-01	1.149E-01	4.204E-02	9.121E-02
IY= 1	6.954E-02	2.159E-02	1.838E-02	1.038E-02	5.525E-03	3.852E-02	1.199E-01	1.201E-01	5.812E-02	9.245E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF EP

IY= 12	1.248E-02	1.053E-02	1.648E-02	1.943E-02	2.115E-02	2.354E-02	2.251E-02	1.244E-02	1.376E-03	3.944E-04
IY= 11	1.674E-02	1.161E-02	1.238E-02	1.152E-02	1.204E-02	1.096E-02	7.842E-03	1.452E-03	1.373E-03	8.112E-04
IY= 10	2.610E-02	1.791E-02	1.502E-02	1.358E-02	1.784E-02	1.800E-02	1.964E-02	6.373E-03	2.235E-03	1.676E-03
IY= 9	2.454E-02	1.772E-02	1.441E-02	1.510E-02	2.314E-02	2.679E-02	3.812E-02	1.920E-02	1.471E-03	3.402E-03
IY= 8	1.541E-02	1.249E-02	1.057E-02	1.317E-02	2.245E-02	3.219E-02	5.696E-02	3.952E-02	1.267E-03	8.581E-03
IY= 7	6.964E-03	7.101E-03	6.577E-03	9.120E-03	1.725E-02	3.071E-02	6.630E-02	5.768E-02	3.145E-03	1.489E-02
IY= 6	2.381E-03	3.409E-03	3.477E-03	4.905E-03	1.096E-02	2.497E-02	6.464E-02	6.286E-02	6.103E-03	1.893E-02
IY= 5	1.276E-03	2.097E-03	2.107E-03	2.507E-03	6.679E-03	1.854E-02	5.443E-02	5.496E-02	7.434E-03	1.927E-02
IY= 4	9.076E-04	1.467E-03	1.417E-03	1.400E-03	4.537E-03	1.453E-02	4.584E-02	4.514E-02	7.088E-03	1.871E-02
IY= 3	5.967E-04	9.857E-04	8.842E-04	5.363E-04	2.598E-03	1.075E-02	3.819E-02	3.610E-02	6.169E-03	1.687E-02
IY= 2	7.514E-04	1.152E-03	9.918E-04	1.751E-04	9.067E-04	7.132E-03	3.161E-02	2.942E-02	5.582E-03	1.486E-02
IY= 1	1.925E-02	3.331E-03	2.617E-03	1.110E-03	4.312E-04	7.936E-03	4.357E-02	4.368E-02	1.233E-02	2.648E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 11	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 10	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 9	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 8	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 7	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 6	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 5	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 4	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 3	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 2	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 1	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF VIST

IY= 12	3.035E-02	2.868E-02	3.329E-02	3.517E-02	3.618E-02	3.749E-02	3.694E-02	3.031E-02	1.787E-02	1.503E-02
IY= 11	3.347E-02	2.962E-02	3.026E-02	2.954E-02	2.999E-02	2.906E-02	2.599E-02	1.481E-02	1.786E-02	1.911E-02
IY= 10	3.881E-02	3.423E-02	3.228E-02	3.121E-02	3.419E-02	3.429E-02	3.530E-02	2.425E-02	2.101E-02	2.434E-02
IY= 9	3.802E-02	3.411E-02	3.183E-02	3.233E-02	3.728E-02	3.915E-02	4.403E-02	3.503E-02	1.828E-02	3.082E-02
IY= 8	3.256E-02	3.036E-02	2.871E-02	3.089E-02	3.690E-02	4.162E-02	5.034E-02	4.456E-02	1.739E-02	4.195E-02
IY= 7	2.498E-02	2.515E-02	2.451E-02	2.733E-02	3.380E-02	4.097E-02	5.295E-02	5.055E-02	2.354E-02	5.041E-02

IY= 6	1.747E-02	1.969E-02	1.982E-02	2.223E-02	2.906E-02	3.824E-02	5.250E-02	5.202E-02	2.936E-02	5.460E-02
IY= 5	1.419E-02	1.674E-02	1.677E-02	1.777E-02	2.464E-02	3.462E-02	4.958E-02	4.974E-02	3.136E-02	5.493E-02
IY= 4	1.267E-02	1.486E-02	1.470E-02	1.464E-02	2.166E-02	3.193E-02	4.682E-02	4.658E-02	3.086E-02	5.439E-02
IY= 3	1.101E-02	1.302E-02	1.256E-02	1.063E-02	1.798E-02	2.887E-02	4.406E-02	4.324E-02	2.947E-02	5.255E-02
IY= 2	1.189E-02	1.371E-02	1.305E-02	7.320E-03	1.266E-02	2.518E-02	4.137E-02	4.039E-02	2.850E-02	5.036E-02
IY= 1	2.261E-02	1.260E-02	1.162E-02	8.734E-03	6.373E-03	1.683E-02	2.968E-02	2.971E-02	2.466E-02	2.906E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.201E+00
IY= 11	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.201E+00
IY= 10	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.201E+00
IY= 9	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.201E+00
IY= 8	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.201E+00
IY= 7	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.201E+00
IY= 6	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.201E+00
IY= 5	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.201E+00
IY= 4	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.201E+00
IY= 3	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.201E+00
IY= 2	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.201E+00
IY= 1	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.201E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF TMP1

IY= 12	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 11	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 10	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 9	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 8	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 7	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 6	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 5	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 4	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 3	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 2	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 1	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

****

TIME STP= 1 SWEEP NO= 180 ZSLAB NO= 2 ITERN NO= 1

FLOW FIELD AT ITHYD= 1, IZ= 10, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	-1.471E+02	-1.499E+02	-1.616E+02	-1.716E+02	-1.775E+02	-1.799E+02	-1.734E+02	-1.642E+02	-1.564E+02	-9.560E+00
IY= 11	-1.625E+02	-1.648E+02	-1.724E+02	-1.794E+02	-1.834E+02	-1.815E+02	-1.740E+02	-1.646E+02	-1.576E+02	-1.142E+01
IY= 10	-1.709E+02	-1.733E+02	-1.794E+02	-1.845E+02	-1.873E+02	-1.833E+02	-1.754E+02	-1.659E+02	-1.613E+02	-1.348E+01
IY= 9	-1.695E+02	-1.729E+02	-1.797E+02	-1.853E+02	-1.882E+02	-1.843E+02	-1.765E+02	-1.672E+02	-1.663E+02	-1.660E+01
IY= 8	-1.605E+02	-1.660E+02	-1.745E+02	-1.815E+02	-1.853E+02	-1.842E+02	-1.766E+02	-1.672E+02	-1.752E+02	-2.026E+01
IY= 7	-1.488E+02	-1.569E+02	-1.670E+02	-1.747E+02	-1.795E+02	-1.821E+02	-1.751E+02	-1.649E+02	-1.765E+02	-2.275E+01
IY= 6	-1.407E+02	-1.513E+02	-1.596E+02	-1.660E+02	-1.707E+02	-1.781E+02	-1.721E+02	-1.609E+02	-1.734E+02	-2.440E+01
IY= 5	-1.494E+02	-1.522E+02	-1.547E+02	-1.588E+02	-1.629E+02	-1.741E+02	-1.691E+02	-1.576E+02	-1.693E+02	-2.487E+01
IY= 4	-1.530E+02	-1.501E+02	-1.501E+02	-1.535E+02	-1.576E+02	-1.714E+02	-1.670E+02	-1.556E+02	-1.670E+02	-2.524E+01
IY= 3	-1.338E+02	-1.374E+02	-1.411E+02	-1.458E+02	-1.509E+02	-1.679E+02	-1.649E+02	-1.538E+02	-1.643E+02	-2.587E+01
IY= 2	-1.212E+02	-1.247E+02	-1.317E+02	-1.386E+02	-1.450E+02	-1.646E+02	-1.627E+02	-1.517E+02	-1.605E+02	-2.610E+01
IY= 1	-1.183E+02	-1.222E+02	-1.294E+02	-1.364E+02	-1.431E+02	-1.634E+02	-1.617E+02	-1.506E+02	-1.580E+02	-2.615E+01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	1.587E+00	3.578E+00	4.746E+00	5.317E+00	5.478E+00	4.980E+00	4.034E+00	2.525E+00	5.[illegible]16E-08
IY= 11	6.456E-01	1.580E+00	2.262E+00	2.799E+00	3.250E+00	3.543E+00	3.028E+00	1.739E+00	3.640E-08
IY= 10	1.333E-01	1.742E-01	2.822E-01	5.270E-01	8.294E-01	1.833E+00	1.685E+00	9.939E-01	2.062E-08
IY= 9	-2.820E-01	-9.693E-01	-1.323E+00	-1.319E+00	-1.305E+00	-4.031E-02	8.714E-02	2.914E-01	4.861E-09
IY= 8	-7.284E-01	-2.115E+00	-2.932E+00	-3.207E+00	-3.175E+00	-2.500E+00	-1.996E+00	-1.577E+00	-1.461E-05
IY= 7	-1.137E+00	-2.962E+00	-4.154E+00	-4.774E+00	-4.982E+00	-4.953E+00	-4.480E+00	-3.510E+00	-1.678E-05
IY= 6	-1.667E+00	-3.693E+00	-5.053E+00	-5.996E+00	-6.536E+00	-7.301E+00	-6.704E+00	-4.692E+00	-1.483E-05
IY= 5	-2.342E+00	-3.780E+00	-5.033E+00	-6.187E+00	-6.995E+00	-8.352E+00	-7.602E+00	-5.055E+00	-8.960E-06
IY= 4	-1.987E+00	-3.250E+00	-4.512E+00	-5.738E+00	-6.668E+00	-8.425E+00	-7.776E+00	-4.900E+00	-6.805E-06
IY= 3	-1.123E+00	-2.461E+00	-3.859E+00	-5.138E+00	-6.107E+00	-8.120E+00	-7.374E+00	-4.154E+00	-6.551E-06
IY= 2	-5.611E-01	-1.396E+00	-2.863E+00	-4.251E+00	-5.306E+00	-7.618E+00	-6.907E+00	-3.651E+00	-3.483E-06
IY= 1	-6.783E-02	-1.353E+00	-3.044E+00	-4.434E+00	-5.414E+00	-7.618E+00	-6.728E+00	-3.275E+00	-1.193E-06
IX=	1	2	3	4	5	6	7	8	9

FIELD VALUES OF V1

IY= 11	4.816E+00	3.671E+00	2.366E+00	1.350E+00	6.065E-01	-1.023E-01	-3.806E-01	-5.855E-01	-1.303E+00	-1.223E+00
IY= 10	7.302E+00	5.909E+00	4.039E+00	2.550E+00	1.503E+00	9.765E-02	-5.615E-01	-1.051E+00	-2.189E+00	-1.735E+00
IY= 9	8.512E+00	6.981E+00	4.979E+00	3.321E+00	2.144E+00	5.845E-01	-5.660E-01	-1.276E+00	-2.766E+00	-2.282E+00
IY= 8	8.677E+00	7.156E+00	5.402E+00	3.815E+00	2.416E+00	1.164E+00	-4.404E-01	-1.184E+00	-3.281E+00	-2.723E+00
IY= 7	7.988E+00	6.680E+00	5.390E+00	4.043E+00	2.710E+00	1.499E+00	-2.073E-01	-1.115E+00	-3.085E+00	-2.755E+00
IY= 6	6.720E+00	5.946E+00	5.154E+00	4.115E+00	2.931E+00	1.761E+00	5.030E-02	-9.346E-01	-2.384E+00	-2.521E+00
IY= 5	5.340E+00	5.456E+00	4.919E+00	4.044E+00	3.010E+00	1.958E+00	4.044E-01	-5.034E-01	-1.380E+00	-2.106E+00
IY= 4	5.948E+00	5.791E+00	4.837E+00	3.892E+00	2.949E+00	2.026E+00	6.733E-01	-1.434E-01	-6.919E-01	-1.828E+00
IY= 3	6.425E+00	5.877E+00	4.606E+00	3.606E+00	2.756E+00	1.983E+00	8.993E-01	2.965E-01	-4.695E-02	-1.528E+00
IY= 2	4.146E+00	4.621E+00	3.636E+00	2.780E+00	2.136E+00	1.610E+00	9.193E-01	5.175E-01	3.779E-01	-9.941E-01

IY= 1	1.496E+00	2.731E+00	2.037E+00	1.445E+00	1.049E+00	7.759E-01	3.934E-01	2.069E-01	2.907E-01	-4.845E-01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF W1

IY= 12	3.712E+00	3.614E+00	3.691E+00	3.873E+00	4.067E+00	4.866E+00	5.242E+00	5.486E+00	5.797E+00	-3.469E-09
IY= 11	3.584E+00	3.321E+00	3.513E+00	4.028E+00	4.515E+00	5.418E+00	5.515E+00	5.515E+00	5.734E+00	1.089E-01
IY= 10	3.496E+00	3.107E+00	3.390E+00	4.183E+00	4.973E+00	5.840E+00	5.617E+00	5.401E+00	5.590E+00	2.166E-01
IY= 9	3.513E+00	2.992E+00	3.235E+00	4.003E+00	4.798E+00	5.329E+00	5.239E+00	5.085E+00	5.360E+00	3.763E-01
IY= 8	3.785E+00	3.092E+00	3.092E+00	3.531E+00	4.036E+00	4.402E+00	4.692E+00	4.681E+00	4.098E+00	5.943E-01
IY= 7	4.472E+00	3.508E+00	3.047E+00	3.179E+00	3.459E+00	3.709E+00	4.057E+00	3.933E+00	2.727E+00	8.623E-01
IY= 6	6.608E+00	4.562E+00	3.095E+00	2.857E+00	2.935E+00	3.042E+00	3.283E+00	2.990E+00	1.582E+00	1.145E+00
IY= 5	1.393E+01	5.670E+00	2.855E+00	2.328E+00	2.305E+00	2.364E+00	2.705E+00	2.474E+00	1.146E+00	1.307E+00
IY= 4	1.265E+01	4.622E+00	2.334E+00	1.823E+00	1.733E+00	1.725E+00	2.034E+00	1.966E+00	6.012E-01	1.448E+00
IY= 3	4.239E+00	2.160E+00	1.507E+00	1.211E+00	1.045E+00	8.851E-01	5.997E-01	7.647E-02	-7.530E-01	1.614E+00
IY= 2	1.537E+00	-2.043E-01	1.938E-01	1.168E-01	-1.288E-01	-4.159E-01	-1.195E+00	-1.735E+00	-1.926E+00	1.719E+00
IY= 1	2.476E+00	-1.028E+00	-5.040E-01	-5.399E-01	-7.863E-01	-1.075E+00	-1.970E+00	-2.547E+00	-2.583E+00	1.769E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF KE

IY= 12	7.930E+00	8.401E+00	7.831E+00	7.351E+00	6.975E+00	5.387E+00	3.828E+00	2.697E+00	1.590E-01	8.743E-03
IY= 11	4.652E+00	4.552E+00	4.299E+00	4.185E+00	4.316E+00	3.734E+00	2.923E+00	2.289E+00	1.616E-01	1.243E-02
IY= 10	4.067E+00	3.538E+00	3.251E+00	3.104E+00	2.955E+00	2.864E+00	2.437E+00	1.964E+00	1.676E-01	2.188E-02
IY= 9	4.301E+00	3.315E+00	2.934E+00	2.981E+00	3.054E+00	3.403E+00	2.956E+00	2.365E+00	1.696E-01	3.308E-02
IY= 8	4.882E+00	3.215E+00	2.742E+00	3.069E+00	3.576E+00	4.068E+00	3.914E+00	2.740E+00	1.239E-01	3.991E-02
IY= 7	5.656E+00	3.092E+00	2.388E+00	2.724E+00	3.262E+00	3.746E+00	3.830E+00	2.196E+00	7.190E-02	3.919E-02
IY= 6	7.127E+00	2.990E+00	1.733E+00	1.904E+00	2.208E+00	2.443E+00	2.472E+00	1.308E+00	3.137E-02	3.431E-02
IY= 5	9.628E+00	2.941E+00	1.041E+00	1.033E+00	1.144E+00	1.261E+00	1.439E+00	8.319E-01	1.340E-02	2.914E-02
IY= 4	6.271E+00	1.914E+00	8.050E-01	7.214E-01	7.140E-01	7.453E-01	8.426E-01	5.690E-01	3.215E-03	2.594E-02
IY= 3	3.453E+00	1.230E+00	6.585E-01	5.551E-01	4.818E-01	4.464E-01	4.163E-01	3.113E-01	3.776E-03	2.245E-02
IY= 2	1.587E+00	4.463E-01	4.046E-01	4.019E-01	3.688E-01	3.518E-01	3.355E-01	2.908E-01	2.062E-02	1.904E-02
IY= 1	3.723E-02	1.075E-02	3.139E-02	8.040E-02	1.336E-01	2.235E-01	2.781E-01	1.659E-01	4.471E-02	1.926E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF EP

IY= 12	1.114E+01	1.103E+01	9.254E+00	8.019E+00	7.181E+00	4.821E+00	2.984E+00	1.818E+00	3.420E-02	4.411E-04
IY= 11	6.607E+00	5.023E+00	3.805E+00	3.336E+00	3.327E+00	2.692E+00	1.919E+00	1.340E+00	3.504E-02	7.480E-04
IY= 10	6.440E+00	3.684E+00	2.365E+00	2.073E+00	1.907E+00	1.743E+00	1.358E+00	1.003E+00	3.702E-02	1.747E-03
IY= 9	7.992E+00	3.581E+00	2.017E+00	1.944E+00	1.946E+00	2.175E+00	1.653E+00	1.182E+00	3.768E-02	3.247E-03
IY= 8	1.094E+01	3.818E+00	1.979E+00	2.112E+00	2.488E+00	2.907E+00	2.690E+00	1.797E+00	2.352E-02	4.301E-03
IY= 7	1.507E+01	4.303E+00	1.820E+00	1.966E+00	2.389E+00	2.826E+00	2.953E+00	1.597E+00	1.040E-02	4.186E-03
IY= 6	2.358E+01	5.148E+00	1.395E+00	1.410E+00	1.621E+00	1.813E+00	1.838E+00	9.512E-01	2.998E-03	3.429E-03
IY= 5	3.983E+01	6.285E+00	8.993E-01	7.803E-01	8.246E-01	8.973E-01	1.024E+00	5.984E-01	8.369E-04	2.684E-03
IY= 4	2.108E+01	3.497E+00	7.214E-01	5.574E-01	5.142E-01	5.245E-01	6.033E-01	4.306E-01	9.836E-05	2.255E-03

IY= 3	8.204E+00	1.953E+00	6.044E-01	4.356E-01	3.480E-01	3.138E-01	3.036E-01	2.464E-01	1.252E-04	1.814E-03
IY= 2	3.005E+00	5.512E-01	3.676E-01	3.142E-01	2.664E-01	2.499E-01	2.481E-01	2.291E-01	1.598E-03	1.417E-03
IY= 1	9.655E-03	1.498E-03	7.476E-03	3.064E-02	6.561E-02	1.421E-01	1.971E-01	9.082E-02	8.903E-03	2.517E-03
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 11	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 10	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.962E+05
IY= 9	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.962E+05
IY= 8	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.962E+05
IY= 7	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 6	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 5	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 4	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 3	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 2	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 1	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF VIST

IY= 12	5.082E-01	5.760E-01	5.964E-01	6.064E-01	6.098E-01	5.418E-01	4.420E-01	3.602E-01	6.651E-02	1.560E-02
IY= 11	2.948E-01	3.712E-01	4.372E-01	4.725E-01	5.040E-01	4.662E-01	4.007E-01	3.520E-01	6.705E-02	1.860E-02
IY= 10	2.311E-01	3.058E-01	4.024E-01	4.183E-01	4.123E-01	4.235E-01	3.938E-01	3.460E-01	6.829E-02	2.468E-02
IY= 9	2.083E-01	2.763E-01	3.840E-01	4.113E-01	4.314E-01	4.794E-01	4.757E-01	4.259E-01	6.869E-02	3.034E-02
IY= 8	1.962E-01	2.437E-01	3.420E-01	4.015E-01	4.625E-01	5.124E-01	5.125E-01	3.760E-01	5.870E-02	3.332E-02
IY= 7	1.911E-01	1.999E-01	2.821E-01	3.397E-01	4.008E-01	4.469E-01	4.471E-01	2.718E-01	4.473E-02	3.302E-02
IY= 6	1.939E-01	1.563E-01	1.938E-01	2.314E-01	2.706E-01	2.963E-01	2.992E-01	1.618E-01	2.954E-02	3.090E-02
IY= 5	2.094E-01	1.239E-01	1.084E-01	1.230E-01	1.429E-01	1.596E-01	1.821E-01	1.041E-01	1.931E-02	2.847E-02
IY= 4	1.679E-01	9.430E-02	8.085E-02	8.405E-02	8.922E-02	9.533E-02	1.059E-01	4.766E-02	9.458E-03	2.687E-02
IY= 3	1.308E-01	6.977E-02	6.457E-02	6.368E-02	6.004E-02	5.715E-02	5.138E-02	3.539E-02	1.025E-02	2.499E-02
IY= 2	7.543E-02	3.253E-02	4.007E-02	4.625E-02	4.596E-02	4.458E-02	4.084E-02	3.322E-02	2.395E-02	2.301E-02
IY= 1	1.292E-02	6.942E-03	1.186E-02	1.899E-02	2.447E-02	3.166E-02	3.531E-02	2.727E-02	2.020E-02	1.326E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 11	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 10	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 9	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.201E+00
IY= 8	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.201E+00
IY= 7	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.201E+00
IY= 6	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.201E+00

IY= 5	1.199E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 4	1.199E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 3	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 2	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 1	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF TMP1

IY= 12	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 11	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 10	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 9	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 8	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 7	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 6	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 5	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 4	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 3	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 2	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 1	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

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TIME STP= 1 SWEEP NO= 180 ZSLAB NO= 11 ITERN NO= 1

FLOW FIELD AT ITHYD= 1, IZ= 11, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	-1.530E+02	-1.557E+02	-1.668E+02	-1.762E+02	-1.813E+02	-1.825E+02	-1.740E+02	-1.645E+02	-1.575E+02	-9.778E+00
IY= 11	-1.682E+02	-1.703E+02	-1.775E+02	-1.839E+02	-1.873E+02	-1.841E+02	-1.746E+02	-1.648E+02	-1.582E+02	-1.172E+01
IY= 10	-1.755E+02	-1.777E+02	-1.835E+02	-1.884E+02	-1.910E+02	-1.858E+02	-1.759E+02	-1.659E+02	-1.605E+02	-1.401E+01
IY= 9	-1.713E+02	-1.749E+02	-1.822E+02	-1.881E+02	-1.909E+02	-1.868E+02	-1.771E+02	-1.666E+02	-1.622E+02	-1.774E+01
IY= 8	-1.574E+02	-1.654E+02	-1.761E+02	-1.838E+02	-1.878E+02	-1.869E+02	-1.773E+02	-1.663E+02	-1.625E+02	-2.249E+01
IY= 7	-1.455E+02	-1.569E+02	-1.698E+02	-1.781E+02	-1.826E+02	-1.852E+02	-1.763E+02	-1.644E+02	-1.625E+02	-2.583E+01
IY= 6	-1.936E+02	-1.715E+02	-1.698E+02	-1.732E+02	-1.762E+02	-1.822E+02	-1.744E+02	-1.617E+02	-1.625E+02	-2.814E+01
IY= 5	-8.826E+02	-2.349E+02	-1.755E+02	-1.693E+02	-1.708E+02	-1.793E+02	-1.727E+02	-1.597E+02	-1.632E+02	-2.892E+01
IY= 4	-1.199E+03	-2.771E+02	-1.750E+02	-1.649E+02	-1.662E+02	-1.769E+02	-1.714E+02	-1.583E+02	-1.641E+02	-2.954E+01
IY= 3	-2.318E+02	-1.788E+02	-1.564E+02	-1.551E+02	-1.586E+02	-1.731E+02	-1.687E+02	-1.557E+02	-1.654E+02	-3.052E+01
IY= 2	-1.218E+02	-1.276E+02	-1.356E+02	-1.436E+02	-1.505E+02	-1.695E+02	-1.662E+02	-1.533E+02	-1.656E+02	-3.099E+01
IY= 1	-1.109E+02	-1.190E+02	-1.297E+02	-1.393E+02	-1.470E+02	-1.677E+02	-1.647E+02	-1.518E+02	-1.651E+02	-3.115E+01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	1.596E+00	3.508E+00	4.603E+00	5.085E+00	5.110E+00	4.405E+00	3.539E+00	2.288E+00	4.752E-08
IY= 11	6.244E-01	1.516E+00	2.016E+00	2.335E+00	2.628E+00	2.867E+00	2.532E+00	1.530E+00	3.157E-08
IY= 10	1.263E-01	9.717E-02	-3.818E-02	-5.372E-02	2.095E-02	1.114E+00	1.204E+00	8.209E-01	1.661E-08
IY= 9	-3.184E-01	-1.071E+00	-1.707E+00	-1.991E+00	-2.069E+00	-9.414E-01	-4.077E-01	1.782E-01	2.649E-09
IY= 8	-9.863E-01	-2.380E+00	-3.364E+00	-3.840E+00	-3.925E+00	-3.346E+00	-2.271E+00	-9.990E-01	-4.900E-08
IY= 7	-2.199E+00	-3.807E+00	-4.737E+00	-5.293E+00	-5.545E+00	-5.493E+00	-4.269E+00	-2.215E+00	-7.764E-08
IY= 6	-7.163E+00	-6.499E+00	-6.165E+00	-6.388E+00	-6.687E+00	-7.252E+00	-5.891E+00	-2.998E+00	-1.559E-06
IY= 5	-2.513E+01	-1.005E+01	-7.078E+00	-6.782E+00	-7.031E+00	-7.906E+00	-6.540E+00	-3.484E+00	-6.203E-06
IY= 4	-2.433E+01	-9.786E+00	-7.047E+00	-6.824E+00	-7.112E+00	-8.187E+00	-6.872E+00	-3.993E+00	-1.022E-05
IY= 3	-6.452E+00	-6.662E+00	-6.501E+00	-6.851E+00	-7.341E+00	-8.849E+00	-8.082E+00	-5.112E+00	-1.748E-05
IY= 2	-1.577E+00	-4.272E+00	-5.929E+00	-7.086E+00	-7.886E+00	-9.581E+00	-8.700E+00	-5.625E+00	-2.008E-05
IY= 1	-5.626E-02	-3.325E+00	-5.305E+00	-6.602E+00	-7.465E+00	-9.340E+00	-8.555E+00	-5.597E+00	-2.127E-05
IX=	1	2	3	4	5	6	7	8	9

FIELD VALUES OF V1

IY= 11	4.811E+00	3.644E+00	2.485E+00	1.486E+00	6.556E-01	-1.276E-01	-4.189E-01	-5.961E-01	-1.273E+00	-1.250E+00
IY= 10	7.047E+00	5.767E+00	4.080E+00	2.595E+00	1.449E+00	-8.674E-03	-6.641E-01	-1.089E+00	-2.144E+00	-1.807E+00
IY= 9	7.899E+00	6.573E+00	4.838E+00	3.218E+00	1.893E+00	4.311E-01	-7.326E-01	-1.338E+00	-2.693E+00	-2.439E+00
IY= 8	7.421E+00	6.247E+00	4.944E+00	3.537E+00	2.174E+00	9.898E-01	-5.560E-01	-1.198E+00	-3.044E+00	-3.006E+00
IY= 7	5.402E+00	4.939E+00	4.538E+00	3.622E+00	2.498E+00	1.406E+00	-2.049E-01	-9.694E-01	-3.050E+00	-3.063E+00
IY= 6	2.667E-01	2.512E+00	3.836E+00	3.548E+00	2.703E+00	1.759E+00	1.789E-01	-7.057E-01	-2.873E+00	-2.800E+00
IY= 5	-1.707E+01	2.688E-01	3.657E+00	3.534E+00	2.760E+00	1.903E+00	4.473E-01	-5.247E-01	-2.801E+00	-2.331E+00
IY= 4	4.944E+00	5.399E+00	4.570E+00	3.609E+00	2.704E+00	1.861E+00	4.960E-01	-5.557E-01	-2.854E+00	-2.022E+00
IY= 3	2.812E+01	1.046E+01	5.250E+00	3.510E+00	2.495E+00	1.674E+00	4.162E-01	-8.152E-01	-2.890E+00	-1.688E+00
IY= 2	9.324E+00	6.977E+00	4.177E+00	2.643E+00	1.677E+00	9.411E-01	-1.344E-01	-9.909E-01	-2.280E+00	-1.091E+00
IY= 1	3.304E+00	3.416E+00	2.051E+00	1.264E+00	7.711E-01	4.132E-01	-1.239E-01	-5.724E-01	-1.201E+00	-5.276E-01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF W1

IY= 12	4.979E+00	4.980E+00	5.004E+00	4.973E+00	4.894E+00	5.048E+00	5.116E+00	5.317E+00	5.734E+00	-4.579E-09
IY= 11	4.550E+00	4.523E+00	4.727E+00	4.923E+00	5.037E+00	5.457E+00	5.355E+00	5.359E+00	5.665E+00	6.459E-02
IY= 10	4.226E+00	4.233E+00	4.647E+00	5.042E+00	5.427E+00	5.881E+00	5.481E+00	5.261E+00	5.445E+00	2.074E-01
IY= 9	3.903E+00	3.931E+00	4.536E+00	4.948E+00	5.314E+00	5.510E+00	5.208E+00	4.978E+00	5.019E+00	6.747E-01
IY= 8	3.374E+00	3.310E+00	4.166E+00	4.551E+00	4.767E+00	4.853E+00	4.779E+00	4.452E+00	3.373E+00	1.831E+00
IY= 7	2.427E+00	2.125E+00	3.495E+00	4.063E+00	4.282E+00	4.311E+00	4.128E+00	3.376E+00	1.461E+00	2.866E+00
IY= 6	-1.124E+00	-6.375E-01	2.168E+00	3.240E+00	3.582E+00	3.580E+00	3.080E+00	1.866E+00	-4.305E-01	3.651E+00
IY= 5	-5.196E-05	-5.516E+00	3.262E-01	2.030E+00	2.584E+00	2.669E+00	2.177E+00	8.478E-01	-1.510E+00	4.010E+00
IY= 4	-1.097E-04	-5.780E+00	-5.000E-01	1.100E+00	1.593E+00	1.666E+00	1.123E+00	-2.985E-01	-2.363E+00	4.268E+00
IY= 3	-8.354E+00	-3.635E+00	-6.918E-01	3.075E-01	4.843E-01	3.363E-01	-7.619E-01	-1.720E+00	-3.317E+00	4.490E+00
IY= 2	-4.084E+00	-1.617E+00	-5.605E-01	-2.246E-01	-2.812E-01	-5.074E-01	-1.616E+00	-2.527E+00	-4.022E+00	4.563E+00
IY= 1	-3.217E+00	-1.136E+00	-5.385E-01	-4.208E-01	-5.839E-01	-8.729E-01	-2.142E+00	-3.007E+00	-4.443E+00	4.559E+00

FIELD VALUES OF KE

IX=	1	2	3	4	5	6	7	8	9	10
IY= 12	6.156E+00	6.771E+00	6.528E+00	6.324E+00	6.228E+00	5.349E+00	4.032E+00	2.885E+00	1.556E-01	9.109E-03
IY= 11	3.842E+00	3.721E+00	3.728E+00	3.732E+00	4.043E+00	3.934E+00	3.180E+00	2.451E+00	1.578E-01	1.317E-02
IY= 10	3.643E+00	3.040E+00	3.015E+00	2.988E+00	3.005E+00	3.201E+00	2.689E+00	2.047E+00	1.598E-01	2.418E-02
IY= 9	4.152E+00	3.051E+00	2.847E+00	2.968E+00	3.237E+00	3.638E+00	3.170E+00	2.254E+00	1.512E-01	3.995E-02
IY= 8	5.189E+00	3.328E+00	2.636E+00	2.871E+00	3.407E+00	3.875E+00	3.823E+00	2.533E+00	9.706E-02	6.139E-02
IY= 7	6.913E+00	4.081E+00	2.226E+00	2.241E+00	2.675E+00	3.064E+00	3.409E+00	2.166E+00	5.393E-02	8.025E-02
IY= 6	2.549E+01	7.804E+00	1.690E+00	1.360E+00	1.580E+00	1.759E+00	2.041E+00	1.414E+00	4.167E-02	9.380E-02
IY= 5	2.806E+01	8.322E+00	1.284E+00	7.909E-01	8.785E-01	9.756E-01	1.215E+00	1.011E+00	5.106E-02	9.771E-02
IY= 4	1.683E+01	5.797E+00	1.109E+00	6.671E-01	6.884E-01	7.417E-01	9.177E-01	8.504E-01	6.710E-02	1.013E-01
IY= 3	1.190E+01	3.141E+00	9.193E-01	6.089E-01	5.929E-01	6.060E-01	6.317E-01	5.247E-01	8.411E-02	1.032E-01
IY= 2	2.515E+00	9.454E-01	6.345E-01	4.769E-01	4.190E-01	3.943E-01	3.588E-01	3.152E-01	9.072E-02	1.005E-01
IY= 1	5.998E-02	2.608E-02	1.040E-01	1.857E-01	2.525E-01	3.514E-01	4.110E-01	2.955E-01	1.231E-01	1.061E-01

FIELD VALUES OF EP

IX=	1	2	3	4	5	6	7	8	9	10
IY= 12	9.174E+00	9.159E+00	7.783E+00	6.851E+00	6.328E+00	4.700E+00	3.088E+00	1.920E+00	3.313E-02	4.691E-04
IY= 11	6.405E+00	4.615E+00	3.316E+00	2.859E+00	2.959E+00	2.771E+00	2.065E+00	1.423E+00	3.381E-02	8.152E-04
IY= 10	7.184E+00	3.955E+00	2.152E+00	1.878E+00	1.832E+00	1.929E+00	1.494E+00	1.039E+00	3.446E-02	2.029E-03
IY= 9	9.991E+00	4.666E+00	1.918E+00	1.865E+00	2.013E+00	2.303E+00	1.773E+00	1.090E+00	3.171E-02	4.308E-03
IY= 8	1.575E+01	6.788E+00	1.882E+00	1.912E+00	2.304E+00	2.689E+00	2.562E+00	1.518E+00	1.631E-02	8.208E-03
IY= 7	2.732E+01	1.210E+01	1.707E+00	1.531E+00	1.854E+00	2.171E+00	2.483E+00	1.477E+00	6.757E-03	1.227E-02
IY= 6	2.518E+02	3.852E+01	1.478E+00	9.250E-01	1.072E+00	1.203E+00	1.419E+00	1.011E+00	4.589E-03	1.[illegible]50E-02
IY= 5	3.790E+02	6.340E+01	1.366E+00	5.621E-01	6.089E-01	6.709E-01	8.325E-01	7.414E-01	6.225E-03	1.648E-02
IY= 4	2.148E+02	3.648E+01	1.207E+00	5.042E-01	5.080E-01	5.497E-01	7.065E-01	7.227E-01	9.378E-03	1.741E-02
IY= 3	1.173E+02	1.289E+01	9.656E-01	4.798E-01	4.582E-01	4.749E-01	5.217E-01	4.382E-01	1.316E-02	1.789E-02
IY= 2	7.562E+00	1.626E+00	6.282E-01	3.735E-01	3.078E-01	2.852E-01	2.613E-01	2.364E-01	1.474E-02	1.720E-02
IY= 1	1.974E-02	5.660E-03	4.507E-02	1.075E-01	1.706E-01	2.799E-01	3.542E-01	2.159E-01	4.067E-02	3.253E-02

FIELD VALUES OF H1

IX=	1	2	3	4	5	6	7	8	9	10
IY= 12	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 11	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 10	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.962E+05
IY= 9	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.962E+05
IY= 8	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.962E+05
IY= 7	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 6	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 5	2.955E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 4	2.952E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 3	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05

IY= 2	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 1	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF VIST

IY= 12	3.718E-01	4.505E-01	4.929E-01	5.253E-01	5.516E-01	5.479E-01	4.738E-01	3.903E-01	6.581E-02	1.592E-02
IY= 11	2.074E-01	2.699E-01	3.773E-01	4.385E-01	4.971E-01	5.027E-01	4.409E-01	3.801E-01	6.625E-02	1.914E-02
IY= 10	1.663E-01	2.104E-01	3.802E-01	4.280E-01	4.436E-01	4.781E-01	4.357E-01	3.630E-01	6.667E-02	2.594E-02
IY= 9	1.553E-01	1.796E-01	3.802E-01	4.251E-01	4.685E-01	5.175E-01	5.101E-01	4.193E-01	6.485E-02	3.334E-02
IY= 8	1.539E-01	1.469E-01	3.323E-01	3.880E-01	4.536E-01	5.025E-01	5.134E-01	3.804E-01	5.197E-02	4.133E-02
IY= 7	1.574E-01	1.239E-01	2.615E-01	2.952E-01	3.475E-01	3.891E-01	4.213E-01	2.860E-01	3.874E-02	4.725E-02
IY= 6	2.323E-01	1.423E-01	1.739E-01	1.801E-01	2.094E-01	2.316E-01	2.643E-01	1.779E-01	3.405E-02	5.109E-02
IY= 5	1.869E-01	9.832E-02	1.086E-01	1.002E-01	1.141E-01	1.277E-01	1.596E-01	1.241E-01	3.769E-02	5.214E-02
IY= 4	1.187E-01	8.291E-02	9.165E-02	7.944E-02	8.396E-02	9.007E-02	1.073E-01	9.177E-02	4.321E-02	5.310E-02
IY= 3	1.087E-01	6.891E-02	7.878E-02	6.954E-02	6.905E-02	6.961E-02	6.883E-02	5.655E-02	4.838E-02	5.358E-02
IY= 2	7.529E-02	4.948E-02	5.768E-02	5.481E-02	5.134E-02	4.906E-02	4.433E-02	3.783E-02	5.024E-02	5.289E-02
IY= 1	1.640E-02	1.081E-02	2.159E-02	2.885E-02	3.365E-02	3.969E-02	4.293E-02	3.640E-02	3.352E-02	3.112E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 11	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 10	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 9	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 8	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 7	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.201E+00
IY= 6	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.200E+00	1.201E+00
IY= 5	1.193E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 4	1.191E+00	1.198E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 3	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 2	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IY= 1	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.200E+00	1.199E+00	1.199E+00	1.200E+00	1.199E+00	1.201E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF TMP1

IY= 12	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 11	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 10	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 9	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 8	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 7	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 6	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 5	2.943E+02	2.948E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02

IY= 4	2.941E+02	2.948E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 3	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 2	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IY= 1	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.949E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

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TIME STP= 1 SWEEP NO= 180 ZSLAB NO= 12 ITERN NO= 1

FLOW FIELD AT ITHYD= 1, IZ= 12, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	-1.628E+02	-1.653E+02	-1.748E+02	-1.819E+02	-1.847E+02	-1.836E+02	-1.733E+02	-1.638E+02	-1.578E+02	-9.937E+00
IY= 11	-1.765E+02	-1.785E+02	-1.845E+02	-1.891E+02	-1.902E+02	-1.850E+02	-1.737E+02	-1.638E+02	-1.579E+02	-1.196E+01
IY= 10	-1.829E+02	-1.851E+02	-1.899E+02	-1.932E+02	-1.941E+02	-1.871E+02	-1.752E+02	-1.647E+02	-1.590E+02	-1.481E+01
IY= 9	-1.791E+02	-1.831E+02	-1.891E+02	-1.931E+02	-1.944E+02	-1.890E+02	-1.767E+02	-1.653E+02	-1.585E+02	-2.109E+01
IY= 8	-1.672E+02	-1.748E+02	-1.838E+02	-1.900E+02	-1.928E+02	-1.902E+02	-1.780E+02	-1.651E+02	-1.507E+02	-3.668E+01
IY= 7	-1.532E+02	-1.643E+02	-1.763E+02	-1.846E+02	-1.891E+02	-1.900E+02	-1.783E+02	-1.644E+02	-1.474E+02	-4.372E+01
IY= 6	-1.584E+02	-1.560E+02	-1.668E+02	-1.770E+02	-1.830E+02	-1.887E+02	-1.776E+02	-1.628E+02	-1.486E+02	-4.796E+01
IY= 5	0.000E+00	-1.384E+02	-1.564E+02	-1.698E+02	-1.775E+02	-1.869E+02	-1.766E+02	-1.613E+02	-1.503E+02	-4.921E+01
IY= 4	0.000E+00	-1.261E+02	-1.483E+02	-1.634E+02	-1.723E+02	-1.849E+02	-1.752E+02	-1.598E+02	-1.516E+02	-5.027E+01
IY= 3	-9.520E+01	-1.172E+02	-1.378E+02	-1.533E+02	-1.632E+02	-1.810E+02	-1.728E+02	-1.579E+02	-1.535E+02	-5.165E+01
IY= 2	-9.898E+01	-1.138E+02	-1.304E+02	-1.450E+02	-1.554E+02	-1.770E+02	-1.699E+02	-1.558E+02	-1.539E+02	-5.198E+01
IY= 1	-1.045E+02	-1.140E+02	-1.282E+02	-1.419E+02	-1.522E+02	-1.749E+02	-1.685E+02	-1.547E+02	-1.538E+02	-5.197E+01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	1.493E+00	3.276E+00	4.221E+00	4.525E+00	4.355E+00	3.305E+00	2.498E+00	1.686E+00	5.417E-08
IY= 11	4.399E-01	1.180E+00	1.547E+00	1.717E+00	1.771E+00	1.752E+00	1.578E+00	1.006E+00	3.255E-08
IY= 10	-1.539E-01	-3.930E-01	-6.245E-01	-7.797E-01	-8.527E-01	5.841E-02	3.767E-01	3.443E-01	1.088E-08
IY= 9	-7.044E-01	-1.664E+00	-2.301E+00	-2.652E+00	-2.738E+00	-1.931E+00	-1.133E+00	-3.786E-01	-7.975E-08
IY= 8	-1.421E+00	-2.892E+00	-3.811E+00	-4.281E+00	-4.398E+00	-4.010E+00	-3.091E+00	-3.851E+00	-6.808E+00
IY= 7	-2.227E+00	-3.962E+00	-5.063E+00	-5.717E+00	-6.002E+00	-6.185E+00	-5.855E+00	-7.261E+00	-9.696E+00
IY= 6	-3.290E+00	-5.103E+00	-6.326E+00	-7.161E+00	-7.678E+00	-8.505E+00	-8.599E+00	-9.723E+00	-1.112E+01
IY= 5	-1.927E-05	-5.411E+00	-7.370E+00	-8.310E+00	-8.840E+00	-9.876E+00	-1.000E+01	-1.078E+01	-1.159E+01
IY= 4	-2.259E-05	-5.827E+00	-8.154E+00	-9.298E+00	-9.883E+00	-1.108E+01	-1.126E+01	-1.154E+01	-1.181E+01
IY= 3	-2.169E+00	-6.334E+00	-8.780E+00	-1.030E+01	-1.120E+01	-1.260E+01	-1.230E+01	-1.174E+01	-1.169E+01
IY= 2	-2.608E+00	-5.697E+00	-7.941E+00	-9.496E+00	-1.046E+01	-1.214E+01	-1.173E+01	-1.095E+01	-1.130E+01
IY= 1	-1.530E+00	-4.271E+00	-6.480E+00	-8.062E+00	-9.075E+00	-1.099E+01	-1.058E+01	-9.986E+00	-1.093E+01
IX=	1	2	3	4	5	6	7	8	9

FIELD VALUES OF V1

FLOW FIELD AT ITHYD= 1, IZ= 15, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	-1.806E+02	-1.804E+02	-1.813E+02	-1.801E+02	-1.764E+02	-1.691E+02	-1.590E+02	-1.528E+02	-1.489E+02	-7.349E+00
IY= 11	-1.905E+02	-1.909E+02	-1.908E+02	-1.877E+02	-1.825E+02	-1.708E+02	-1.600E+02	-1.527E+02	-1.486E+02	-8.488E+00
IY= 10	-2.092E+02	-2.108E+02	-2.106E+02	-2.058E+02	-1.977E+02	-1.781E+02	-1.628E+02	-1.538E+02	-1.493E+02	-1.057E+01
IY= 9	-2.475E+02	-2.548E+02	-2.548E+02	-2.463E+02	-2.315E+02	-1.905E+02	-1.662E+02	-1.548E+02	-1.486E+02	-1.563E+01
IY= 8	-3.058E+02	-3.389E+02	-3.391E+02	-3.237E+02	-2.951E+02	-2.057E+02	-1.696E+02	-1.548E+02	-1.386E+02	-2.879E+01
IY= 7	-4.226E+02	-4.449E+02	-4.048E+02	-3.777E+02	-3.422E+02	-2.179E+02	-1.723E+02	-1.550E+02	-1.395E+02	-3.320E+01
IY= 6	-9.194E+02	-6.548E+02	-4.388E+02	-4.053E+02	-3.728E+02	-2.271E+02	-1.745E+02	-1.554E+02	-1.469E+02	-3.510E+01
IY= 5	5.644E+03	-9.863E+02	-3.536E+02	-3.977E+02	-3.820E+02	-2.311E+02	-1.756E+02	-1.557E+02	-1.519E+02	-3.564E+01
IY= 4	5.705E+03	-9.676E+02	-3.535E+02	-4.004E+02	-3.866E+02	-2.325E+02	-1.758E+02	-1.558E+02	-1.558E+02	-3.631E+01
IY= 3	-8.629E+02	-6.137E+02	-4.303E+02	-4.119E+02	-3.887E+02	-2.321E+02	-1.761E+02	-1.566E+02	-1.607E+02	-3.713E+01
IY= 2	-2.868E+02	-3.564E+02	-3.818E+02	-3.969E+02	-3.807E+02	-2.288E+02	-1.757E+02	-1.572E+02	-1.627E+02	-3.688E+01
IY= 1	-2.467E+02	-3.078E+02	-3.589E+02	-3.861E+02	-3.729E+02	-2.247E+02	-1.753E+02	-1.576E+02	-1.631E+02	-3.644E+01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	1.043E+00	2.204E+00	2.602E+00	2.442E+00	1.859E+00	7.532E-01	3.909E-01	5.448E-01	3.961E-09
IY= 11	3.243E-01	6.544E-01	4.737E-01	8.863E-02	-1.825E-01	-2.864E-01	-9.575E-02	1.452E-01	1.107E-09
IY= 10	-2.250E-01	-9.459E-01	-1.764E+00	-2.363E+00	-2.529E+00	-1.666E+00	-9.309E-01	-2.510E-01	-4.136E-11
IY= 9	-6.798E-01	-2.518E+00	-3.975E+00	-4.875E+00	-5.142E+00	-3.302E+00	-1.941E+00	-7.066E-01	-2.387E-08
IY= 8	-4.216E-01	-4.049E+00	-6.008E+00	-7.365E+00	-8.014E+00	-4.891E+00	-3.349E+00	-4.218E+00	-7.910E+00
IY= 7	-3.668E+00	-7.485E+00	-8.685E+00	-1.010E+01	-1.092E+01	-6.895E+00	-6.030E+00	-8.675E+00	-1.198E+01
IY= 6	-1.598E+01	-1.443E+01	-1.156E+01	-1.286E+01	-1.385E+01	-9.437E+00	-9.382E+00	-1.195E+01	-1.390E+01
IY= 5	5.152E+01	4.848E+00	-1.079E+01	-1.420E+01	-1.559E+01	-1.121E+01	-1.129E+01	-1.322E+01	-1.457E+01
IY= 4	5.008E+01	2.575E+00	-1.154E+01	-1.544E+01	-1.698E+01	-1.275E+01	-1.289E+01	-1.395E+01	-1.481E+01
IY= 3	-1.507E+01	-1.644E+01	-1.577E+01	-1.818E+01	-1.953E+01	-1.509E+01	-1.423E+01	-1.414E+01	-1.471E+01
IY= 2	-3.580E+00	-1.187E+01	-1.667E+01	-1.997E+01	-2.127E+01	-1.613E+01	-1.408E+01	-1.345E+01	-1.435E+01
IY= 1	-2.930E+00	-1.064E+01	-1.626E+01	-1.987E+01	-2.098E+01	-1.402E+01	-1.164E+01	-1.195E+01	-1.388E+01
IX=	1	2	3	4	5	6	7	8	9

FIELD VALUES OF V1

IY= 11	1.650E+00	7.030E-01	-3.523E-01	-1.103E+00	-1.630E+00	-1.448E+00	-9.976E-01	-6.906E-01	-1.012E+00	-9.398E-01
IY= 10	1.516E+00	1.527E-01	-1.742E+00	-2.828E+00	-3.200E+00	-2.739E+00	-1.798E+00	-1.335E+00	-1.771E+00	-1.639E+00
IY= 9	8.025E-02	-1.886E+00	-4.229E+00	-5.197E+00	-5.028E+00	-3.841E+00	-2.389E+00	-1.753E+00	-2.169E+00	-2.704E+00
IY= 8	-1.406E+00	-4.585E+00	-7.105E+00	-7.747E+00	-6.872E+00	-4.569E+00	-2.673E+00	-1.765E+00	-1.778E+00	-4.541E+00
IY= 7	2.885E+00	-5.564E+00	-6.737E+00	-7.190E+00	-6.429E+00	-4.539E+00	-2.776E+00	-2.311E+00	-3.318E+00	-4.116E+00

IY= 6	1.923E+01	-6.419E+00	-4.257E+00	-5.147E+00	-5.101E+00	-4.100E+00	-2.990E+00	-3.066E+00	-3.830E+00	-3.201E+00
IY= 5	6.600E+01	-7.136E+00	2.506E+00	-2.501E+00	-3.581E+00	-3.432E+00	-3.109E+00	-3.199E+00	-3.344E+00	-2.335E+00
IY= 4	5.548E-01	5.852E+00	3.152E-01	-2.086E+00	-2.943E+00	-3.038E+00	-3.059E+00	-3.026E+00	-2.863E+00	-1.875E+00
IY= 3	-6.625E+01	1.273E+01	-2.947E+00	-1.890E+00	-2.377E+00	-2.623E+00	-2.859E+00	-2.608E+00	-2.215E+00	-1.452E+00
IY= 2	-1.646E+01	8.797E+00	1.956E+00	-2.635E-01	-1.167E+00	-1.575E+00	-1.870E+00	-1.427E+00	-9.542E-01	-7.860E-01
IY= 1	-1.287E+00	3.423E+00	1.388E+00	3.862E-01	-3.796E-02	-2.675E-01	-5.852E-01	-2.852E-01	-1.253E-01	-2.875E-01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	6.763E+00	6.464E+00	5.993E+00	5.476E+00	4.916E+00	3.027E+00	2.327E+00	2.550E+00	3.234E+00	-1.832E-08
IY= 11	7.141E+00	6.510E+00	5.521E+00	4.652E+00	3.924E+00	2.465E+00	2.205E+00	2.568E+00	3.278E+00	-8.444E-01
IY= 10	8.476E+00	7.521E+00	5.882E+00	4.552E+00	3.446E+00	2.508E+00	2.274E+00	2.634E+00	3.284E+00	-1.362E+00
IY= 9	1.183E+01	1.051E+01	8.134E+00	6.068E+00	4.403E+00	3.012E+00	2.427E+00	2.711E+00	3.298E+00	-1.641E+00
IY= 8	2.121E+01	1.701E+01	1.415E+01	1.143E+01	8.237E+00	3.758E+00	2.421E+00	2.141E+00	8.482E-01	-1.577E+00
IY= 7	4.627E+01	2.069E+01	1.797E+01	1.481E+01	1.038E+01	4.166E+00	1.917E+00	9.329E-01	-5.711E-01	-1.590E+00
IY= 6	1.087E+02	1.909E+01	1.879E+01	1.572E+01	1.075E+01	3.882E+00	1.017E+00	-7.494E-02	-1.501E+00	-1.600E+00
IY= 5	8.155E+02	1.070E+02	2.494E+01	1.532E+01	1.026E+01	3.351E+00	4.517E-01	-5.670E-01	-1.946E+00	-1.535E+00
IY= 4	8.151E+02	9.182E+01	2.109E+01	1.482E+01	9.638E+00	2.782E+00	-5.876E-02	-9.332E-01	-2.224E+00	-1.392E+00
IY= 3	1.097E+02	1.636E+01	1.720E+01	1.340E+01	8.171E+00	1.656E+00	-5.768E-01	-1.231E+00	-2.476E+00	-1.159E+00
IY= 2	4.112E+01	1.733E+01	1.556E+01	1.190E+01	6.726E+00	6.660E-01	-9.331E-01	-1.486E+00	-2.851E+00	-1.100E+00
IY= 1	2.052E+01	1.745E+01	1.480E+01	1.049E+01	4.779E+00	-1.509E+00	-1.903E+00	-2.144E+00	-3.353E+00	-1.161E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF KE

IY= 12	4.253E+00	4.637E+00	4.546E+00	4.786E+00	5.392E+00	6.802E+00	5.155E+00	3.353E+00	5.655E-02	5.413E-03
IY= 11	4.096E+00	4.173E+00	4.174E+00	4.928E+00	5.882E+00	7.433E+00	5.038E+00	3.165E+00	6.195E-02	1.335E-02
IY= 10	6.144E+00	6.951E+00	7.542E+00	7.689E+00	8.044E+00	8.333E+00	4.905E+00	2.683E+00	7.081E-02	3.387E-02
IY= 9	1.165E+01	1.420E+01	1.434E+01	1.304E+01	1.171E+01	9.854E+00	4.994E+00	2.754E+00	7.125E-02	7.589E-02
IY= 8	1.345E+01	2.116E+01	2.316E+01	2.166E+01	1.805E+01	1.332E+01	5.639E+00	3.623E+00	3.515E-01	2.744E-01
IY= 7	4.008E+01	2.895E+01	2.652E+01	2.481E+01	2.035E+01	1.487E+01	6.389E+00	3.866E+00	4.791E-01	3.745E-01
IY= 6	1.673E+02	7.203E+01	1.926E+01	2.108E+01	1.796E+01	1.345E+01	5.709E+00	2.750E+00	4.917E-01	3.980E-01
IY= 5	5.593E+01	1.884E+02	1.894E+01	1.939E+01	1.585E+01	1.214E+01	4.991E+00	2.101E+00	4.879E-01	3.921E-01
IY= 4	5.602E+01	1.599E+02	1.446E+01	1.825E+01	1.488E+01	1.139E+01	4.125E+00	1.548E+00	4.796E-01	3.682E-01
IY= 3	1.700E+02	5.318E+01	1.294E+01	1.550E+01	1.247E+01	9.027E+00	2.496E+00	9.633E-01	4.464E-01	3.166E-01
IY= 2	3.100E+01	1.636E+01	1.173E+01	9.996E+00	7.251E+00	5.028E+00	1.498E+00	7.065E-01	4.049E-01	2.893E-01
IY= 1	1.837E+00	1.522E+00	1.720E+00	1.863E+00	1.877E+00	1.352E+00	7.733E-01	6.690E-01	8.148E-01	8.820E-01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF EP

IY= 12	5.192E+00	5.299E+00	4.749E+00	4.749E+00	5.227E+00	5.835E+00	3.526E+00	1.895E+00	7.256E-03	2.149E-04
IY= 11	5.102E+00	4.352E+00	3.477E+00	3.985E+00	4.925E+00	5.924E+00	3.200E+00	1.673E+00	8.320E-03	8.318E-04
IY= 10	8.490E+00	8.121E+00	6.916E+00	6.629E+00	6.752E+00	6.494E+00	2.962E+00	1.317E+00	1.017E-02	3.363E-03
IY= 9	2.074E+01	2.243E+01	1.749E+01	1.407E+01	1.110E+01	7.857E+00	2.959E+00	1.354E+00	1.026E-02	1.128E-02

IY= 8	1.793E+02	4.876E+01	3.816E+01	3.186E+01	2.172E+01	1.200E+01	3.663E+00	2.619E+00	5.800E-01	3.88[illegible]-01
IY= 7	2.097E+03	7.676E+01	4.826E+01	3.998E+01	2.678E+01	1.504E+01	5.180E+00	4.148E+00	8.334E-01	6.228[illegible]-01
IY= 6	1.539E+04	1.342E+03	9.186E+01	3.400E+01	2.473E+01	1.514E+01	5.466E+00	3.410E+00	8.400E-01	7.013E-[illegible]
IY= 5	1.567E+04	1.816E+04	8.029E+02	3.319E+01	2.247E+01	1.458E+01	5.168E+00	2.746E+00	8.253E-01	7.062E-[illegible]
IY= 4	1.579E+04	1.533E+04	4.606E+02	3.318E+01	2.249E+01	1.470E+01	4.577E+00	2.096E+00	8.067E-01	6.685E-01
IY= 3	1.650E+04	9.452E+02	6.142E+01	3.021E+01	2.085E+01	1.277E+01	2.896E+00	1.346E+00	7.389E-01	5.683E-01
IY= 2	1.837E+03	5.838E+01	2.737E+01	2.049E+01	1.266E+01	7.612E+00	1.840E+00	1.000E+00	6.322E-01	5.073E-01
IY= 1	3.347E+00	2.524E+00	3.031E+00	3.418E+00	3.457E+00	2.114E+00	9.140E-01	7.355E-01	9.806E-01	1.113E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 11	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 10	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 9	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 8	3.030E+05	2.962E+05	2.959E+05	2.959E+05	2.960E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 7	3.612E+05	2.959E+05	2.959E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 6	5.478E+05	2.964E+05	2.976E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 5	1.952E+06	5.505E+05	3.214E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 4	1.952E+06	5.255E+05	3.092E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 3	5.564E+05	2.962E+05	2.970E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 2	3.621E+05	2.959E+05	2.959E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IY= 1	2.995E+05	2.960E+05	2.959E+05	2.959E+05	2.959E+05	2.960E+05	2.961E+05	2.961E+05	2.961E+05	2.962E+05
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF VIST

IY= 12	3.136E-01	3.653E-01	3.917E-01	4.340E-01	5.007E-01	7.137E-01	6.785E-01	5.340E-01	3.967E-02	1.227E-02
IY= 11	2.959E-01	3.602E-01	4.510E-01	5.485E-01	6.322E-01	8.395E-01	7.140E-01	5.390E-01	4.152E-02	1.927E-02
IY= 10	4.002E-01	5.355E-01	7.403E-01	8.028E-01	8.625E-01	9.624E-01	7.311E-01	4.921E-01	4.439E-02	3.070E-02
IY= 9	5.891E-01	8.090E-01	1.058E+00	1.087E+00	1.112E+00	1.112E+00	7.585E-01	5.040E-01	4.453E-02	4.595E-02
IY= 8	9.081E-02	8.267E-01	1.265E+00	1.325E+00	1.351E+00	1.330E+00	7.813E-01	4.511E-01	1.918E-02	1.744E-02
IY= 7	6.896E-02	9.825E-01	1.312E+00	1.385E+00	1.392E+00	1.323E+00	7.093E-01	3.243E-01	2.479E-02	2.027E-02
IY= 6	1.636E-01	3.480E-01	3.636E-01	1.176E+00	1.174E+00	1.076E+00	5.367E-01	1.996E-01	2.590E-02	2.032E-02
IY= 5	1.796E-02	1.759E-01	4.021E-02	1.019E+00	1.007E+00	9.104E-01	4.338E-01	1.447E-01	2.596E-02	1.959E-02
IY= 4	1.788E-02	1.501E-01	4.087E-02	9.038E-01	8.861E-01	7.940E-01	3.346E-01	1.028E-01	2.566E-02	1.826E-02
IY= 3	1.575E-01	2.693E-01	2.453E-01	7.156E-01	6.714E-01	5.741E-01	1.935E-01	6.205E-02	2.427E-02	1.588E-02
IY= 2	4.709E-02	4.126E-01	4.526E-01	4.308E-01	3.738E-01	2.989E-01	1.098E-01	4.490E-02	2.335E-02	1.484E-02
IY= 1	9.076E-02	8.261E-02	8.781E-02	9.139E-02	9.174E-02	7.787E-02	5.888E-02	5.477E-02	6.044E-02	6.289E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.200E+00	1.200E+00	1.201E+00
IY= 11	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.199E+00	1.200E+00	1.200E+00	1.200E+00	1.201E+00

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IY= 10   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  9   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  8   1.170E+00   1.197E+00   1.198E+00   1.198E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  7   9.805E-01   1.197E+00   1.197E+00   1.198E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  6   6.434E-01   1.192E+00   1.190E+00   1.197E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  5   1.924E-01   6.399E-01   1.103E+00   1.197E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  4   1.925E-01   6.704E-01   1.146E+00   1.197E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.200E+00   1.201E+00
IY=  3   6.338E-01   1.194E+00   1.193E+00   1.197E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.199E+00   1.201E+00
IY=  2   9.794E-01   1.198E+00   1.198E+00   1.197E+00   1.198E+00   1.199E+00   1.199E+00   1.199E+00   1.199E+00   1.201E+00
IY=  1   1.185E+00   1.198E+00   1.198E+00   1.198E+00   1.198E+00   1.199E+00   1.199E+00   1.200E+00   1.199E+00   1.201E+00
 IX=     1           2           3           4           5           6           7           8           9           10
FIELD VALUES OF TMP1
IY= 12   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY= 11   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY= 10   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  9   2.948E+02   2.948E+02   2.948E+02   2.948E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  8   3.018E+02   2.950E+02   2.948E+02   2.948E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  7   3.598E+02   2.947E+02   2.947E+02   2.947E+02   2.948E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  6   5.456E+02   2.952E+02   2.964E+02   2.947E+02   2.947E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  5   1.944E+03   5.483E+02   3.202E+02   2.947E+02   2.947E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  4   1.944E+03   5.234E+02   3.080E+02   2.947E+02   2.947E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  3   5.542E+02   2.950E+02   2.958E+02   2.947E+02   2.947E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  2   3.607E+02   2.948E+02   2.947E+02   2.947E+02   2.947E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
IY=  1   2.983E+02   2.948E+02   2.947E+02   2.947E+02   2.947E+02   2.948E+02   2.949E+02   2.949E+02   2.949E+02   2.950E+02
 IX=     1           2           3           4           5           6           7           8           9           10

*****************************************************************
TIME STP=     1 SWEEP NO=   180 ZSLAB NO=    16 ITERN NO=     1

FLOW FIELD AT ITHYD=  1, IZ= 16, ISWEEP= 180, ISTEP=   1
FIELD VALUES OF P1
IY= 12  -1.748E+02  -1.744E+02  -1.750E+02  -1.739E+02  -1.709E+02  -1.655E+02  -1.580E+02  -1.509E+02  -1.467E+02  -6.785E+00
IY= 11  -1.842E+02  -1.842E+02  -1.837E+02  -1.809E+02  -1.763E+02  -1.672E+02  -1.582E+02  -1.508E+02  -1.466E+02  -7.796E+00
IY= 10  -2.052E+02  -2.064E+02  -2.057E+02  -2.012E+02  -1.930E+02  -1.758E+02  -1.611E+02  -1.520E+02  -1.476E+02  -1.003E+01
IY=  9  -2.607E+02  -2.693E+02  -2.685E+02  -2.582E+02  -2.418E+02  -1.904E+02  -1.647E+02  -1.535E+02  -1.486E+02  -1.594E+01
IY=  8  -3.909E+02  -4.611E+02  -4.750E+02  -4.527E+02  -4.011E+02  -2.103E+02  -1.685E+02  -1.548E+02  -1.428E+02  -3.206E+01
IY=  7  -5.200E+02  -5.769E+02  -5.575E+02  -5.358E+02  -4.899E+02  -2.240E+02  -1.716E+02  -1.562E+02  -1.402E+02  -3.883E+01
IY=  6  -3.049E+02  -5.927E+02  -5.555E+02  -5.699E+02  -5.467E+02  -2.339E+02  -1.743E+02  -1.576E+02  -1.425E+02  -4.230E+01
IY=  5  -3.140E+03  -4.575E+02  -4.766E+02  -5.651E+02  -5.667E+02  -2.378E+02  -1.755E+02  -1.585E+02  -1.445E+02  -4.314E+01
```

FIELD VALUES OF TMP1

IX=	1	2	3	4	5	6	7	8	9	10
IY= 12	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 11	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 10	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 9	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 8	4.118E+02	3.644E+02	3.352E+02	3.374E+02	3.728E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 7	4.917E+02	4.317E+02	3.617E+02	3.399E+02	3.546E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 6	6.222E+02	5.229E+02	3.992E+02	3.405E+02	3.188E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 5	7.958E+02	6.021E+02	4.299E+02	3.456E+02	3.123E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 4	7.816E+02	5.946E+02	4.294E+02	3.489E+02	3.174E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 3	5.984E+02	5.077E+02	4.012E+02	3.551E+02	3.673E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 2	4.612E+02	4.118E+02	3.643E+02	3.568E+02	3.837E+02	2.951E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 1	3.748E+02	3.374E+02	3.307E+02	3.457E+02	3.950E+02	2.951E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

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TIME STP= 1 SWEEP NO= 180 ZSLAB NO= 22 ITERN NO= 1

FLOW FIELD AT ITHYD= 1, IZ= 22, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	-2.794E+00	-2.795E+00	-2.797E+00	-2.800E+00	-2.805E+00	-2.817E+00	-2.821E+00	-2.815E+00	-2.782E+00	-2.655E+00
IY= 11	-2.854E+00	-2.854E+00	-2.856E+00	-2.860E+00	-2.866E+00	-2.881E+00	-2.885E+00	-2.883E+00	-2.857E+00	-2.759E+00
IY= 10	-2.844E+00	-2.844E+00	-2.847E+00	-2.851E+00	-2.858E+00	-2.881E+00	-2.882E+00	-2.884E+00	-2.870E+00	-2.790E+00
IY= 9	-2.833E+00	-2.833E+00	-2.836E+00	-2.841E+00	-2.849E+00	-2.886E+00	-2.879E+00	-2.884E+00	-2.881E+00	-2.811E+00
IY= 8	-1.142E+03	-1.147E+03	-1.170E+03	-1.186E+03	-1.187E+03	-2.896E+00	-2.877E+00	-2.884E+00	-2.886E+00	-2.822E+00
IY= 7	-1.154E+03	-1.154E+03	-1.175E+03	-1.192E+03	-1.190E+03	-2.886E+00	-2.874E+00	-2.883E+00	-2.890E+00	-2.830E+00
IY= 6	-1.142E+03	-1.148E+03	-1.170E+03	-1.191E+03	-1.194E+03	-2.878E+00	-2.871E+00	-2.881E+00	-2.892E+00	-2.836E+00
IY= 5	-1.122E+03	-1.142E+03	-1.169E+03	-1.190E+03	-1.196E+03	-2.873E+00	-2.866E+00	-2.877E+00	-2.890E+00	-2.839E+00
IY= 4	-1.126E+03	-1.144E+03	-1.171E+03	-1.191E+03	-1.197E+03	-2.870E+00	-2.864E+00	-2.876E+00	-2.890E+00	-2.840E+00
IY= 3	-1.149E+03	-1.154E+03	-1.175E+03	-1.195E+03	-1.199E+03	-2.868E+00	-2.861E+00	-2.875E+00	-2.891E+00	-2.843E+00
IY= 2	-1.165E+03	-1.166E+03	-1.182E+03	-1.194E+03	-1.195E+03	-2.865E+00	-2.856E+00	-2.870E+00	-2.890E+00	-2.844E+00
IY= 1	-1.167E+03	-1.170E+03	-1.182E+03	-1.189E+03	-1.188E+03	-2.863E+00	-2.851E+00	-2.866E+00	-2.890E+00	-2.845E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	3.641E-03	1.015E-02	1.629E-02	2.139E-02	2.448E-02	6.705E-03	-1.145E-02	-7.258E-02	-1.635E-01
IY= 11	7.938E-03	2.240E-02	3.649E-02	4.902E-02	5.786E-02	1.551E-02	-2.912E-02	-1.372E-01	-2.255E-01
IY= 10	1.290E-02	3.726E-02	6.174E-02	8.579E-02	1.071E-01	2.805E-02	-4.985E-02	-1.788E-01	-2.452E-01
IY= 9	2.090E-02	5.599E-02	9.211E-02	1.320E-01	1.815E-01	4.699E-02	-6.983E-02	-1.999E-01	-2.461E-01

IY= 8	2.217E+00	4.053E+00	4.051E+00	2.889E+00	3.669E-07	2.337E-02	-8.421E-02	-2.066E-01	-2.399E-01
IY= 7	4.100E-01	1.337E+00	1.594E+00	9.444E-01	1.598E-08	3.515E-03	-9.632E-02	-2.054E-01	-2.294E-01
IY= 6	2.783E-01	7.474E-01	9.503E-01	5.020E-01	3.369E-08	-1.501E-02	-1.048E-01	-1.973E-01	-2.156E-01
IY= 5	8.927E-01	9.322E-01	8.467E-01	4.584E-01	3.124E-08	-2.546E-02	-1.085E-01	-1.892E-01	-2.038E-01
IY= 4	8.844E-01	9.006E-01	8.166E-01	5.271E-01	3.256E-08	-3.522E-02	-1.101E-01	-1.781E-01	-1.922E-01
IY= 3	3.762E-01	6.649E-01	8.639E-01	7.521E-01	3.787E-08	-4.326E-02	-1.036E-01	-1.536E-01	-1.785E-01
IY= 2	3.371E-01	9.3[illegible]E-01	1.250E+00	1.075E+00	5.099E-08	-6.176E-02	-8.124E-02	-1.134E-01	-1.651E-01
IY= 1	1.078E+00	2.030E+00	2.459E+00	1.690E+00	3.170E-07	-1.217E-01	-2.939E-02	-2.976E-02	-1.556E-01
IX=	1	2	3	4	5	6	7	8	9

FIELD VALUES OF V1

IY= 11	-2.109E-01	-2.109E-01	-2.116E-01	-2.133E-01	-2.165E-01	-2.284E-01	-2.275E-01	-2.415E-01	-2.645E-01	-2.520E-01
IY= 10	-1.662E-01	-1.656E-01	-1.669E-01	-1.710E-01	-1.794E-01	-2.195E-01	-2.167E-01	-2.519E-01	-2.824E-01	-2.373E-01
IY= 9	-9.772E-02	-9.526E-02	-9.651E-02	-1.014E-01	-1.140E-01	-2.143E-01	-2.077E-01	-2.583E-01	-2.774E-01	-2.010E-01
IY= 8	1.218E-06	6.939E-07	1.382E-07	1.903E-09	1.276E-09	-2.220E-01	-2.062E-01	-2.553E-01	-2.521E-01	-1.558E-01
IY= 7	4.366E+00	2.562E+00	9.282E-01	5.848E-02	-1.185E+00	-1.802E-01	-1.995E-01	-2.461E-01	-2.231E-01	-1.206E-01
IY= 6	5.012E+00	3.388E+00	1.481E+00	4.041E-01	-4.412E-01	-1.412E-01	-1.884E-01	-2.287E-01	-1.863E-01	-8.681E-02
IY= 5	4.047E+00	2.780E+00	1.109E+00	1.072E-01	-4.149E-01	-1.054E-01	-1.726E-01	-2.023E-01	-1.434E-01	-5.687E-02
IY= 4	2.125E+00	1.666E+00	4.963E-01	-2.157E-01	-6.241E-01	-8.655E-02	-1.621E-01	-1.843E-01	-1.175E-01	-4.240E-02
IY= 3	1.962E-01	4.914E-01	-1.162E-01	-4.416E-01	-7.283E-01	-6.876E-02	-1.496E-01	-1.630E-01	-9.045E-02	-3.034E-02
IY= 2	-1.169E+00	-5.698E-01	-5.143E-01	-6.927E-02	8.849E-01	-4.036E-02	-1.216E-01	-1.163E-01	-4.330E-02	-1.449E-02
IY= 1	-1.398E+00	-6.175E-01	-1.916E-01	5.878E-01	1.542E+00	-1.689E-02	-7.931E-02	-6.299E-02	-4.774E-03	-4.859E-03
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF W1

IY= 12	8.350E-02	8.306E-02	8.147E-02	7.894E-02	7.565E-02	6.673E-02	5.607E-02	4.245E-02	2.450E-02	-6.812E-08
IY= 11	1.674E-01	1.666E-01	1.635E-01	1.584E-01	1.514E-01	1.307E-01	1.085E-01	7.728E-02	4.267E-02	1.621E-02
IY= 10	2.510E-01	2.502E-01	2.458E-01	2.381E-01	2.269E-01	1.874E-01	1.512E-01	1.022E-01	5.600E-02	2.656E-02
IY= 9	3.395E-01	3.400E-01	3.354E-01	3.264E-01	3.119E-01	2.387E-01	1.819E-01	1.196E-01	6.602E-02	3.288E-02
IY= 8	8.185E+01	6.442E+01	4.190E+01	1.873E+01	-1.609E+01	2.483E-01	1.960E-01	1.296E-01	7.208E-02	3.576E-02
IY= 7	1.144E+02	9.605E+01	6.191E+01	3.289E+01	-2.354E+00	2.566E-01	2.051E-01	1.380E-01	7.700E-02	3.[illegible]7E-02
IY= 6	1.632E+02	1.301E+02	7.989E+01	4.359E+01	1.033E+01	2.636E-01	2.115E-01	1.461E-01	8.133E-02	3.740E-02
IY= 5	2.152E+02	1.531E+02	8.816E+01	4.708E+01	1.416E+01	2.682E-01	2.148E-01	1.514E-01	8.443E-02	3.750E-02
IY= 4	2.091E+02	1.495E+02	8.638E+01	4.604E+01	1.393E+01	2.736E-01	2.185E-01	1.577E-01	8.818E-02	3.756E-02
IY= 3	1.499E+02	1.202E+02	7.411E+01	3.980E+01	9.688E+00	2.833E-01	2.272E-01	1.710E-01	9.578E-02	3.750E-02
IY= 2	9.945E+01	8.375E+01	5.353E+01	2.613E+01	-9.417E+00	2.808E-01	2.409E-01	1.900E-01	1.072E-01	3.750E-02
IY= 1	6.948E+01	5.433E+01	3.287E+01	7.708E+00	-3.964E+01	2.739E-01	2.622E-01	2.229E-01	1.166E-01	3.734E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF KE

IY= 12	1.539E-07	1.534E-07	1.309E-07	9.691E-08	5.950E-08	2.531E-08	1.541E-08	4.696E-09	2.990E-10	1.000E-10
IY= 11	1.571E-06	1.600E-06	1.498E-06	1.310E-06	1.054E-06	5.229E-07	2.838E-07	4.316E-08	1.920E-09	1.000E-10
IY= 10	3.601E-05	3.984E-05	4.088E-05	4.048E-05	3.926E-05	1.486E-05	3.519E-06	2.148E-07	7.629E-09	1.244E-09

IY= 9	9.729E-04	9.831E-04	9.900E-04	9.985E-04	1.019E-03	2.843E-04	3.704E-05	8.444E-07	3.923E-08	1.473E-08
IY= 8	2.348E+01	1.506E+01	6.821E+00	1.571E+00	1.158E+00	7.150E-04	7.794E-05	1.937E-06	1.357E-07	7.110E-08
IY= 7	2.578E+03	1.990E+03	1.126E+03	6.929E+02	3.778E-02	6.486E-04	1.198E-04	4.788E-06	6.518E-07	4.046E-07
IY= 6	5.787E+03	3.978E+03	1.895E+03	9.026E+02	5.118E-01	6.039E-04	1.990E-04	1.393E-05	3.740E-06	2.126E-06
IY= 5	8.329E+03	5.666E+03	2.366E+03	9.883E+02	9.139E-01	5.811E-04	2.662E-04	2.444E-05	8.908E-06	4.874E-06
IY= 4	8.204E+03	5.543E+03	2.335E+03	9.972E+02	8.876E-01	5.794E-04	3.680E-04	4.798E-05	2.459E-05	1.104E-05
IY= 3	5.445E+03	3.718E+03	1.821E+03	9.361E+02	4.539E-01	5.945E-04	7.884E-04	2.875E-04	1.806E-04	2.608E-05
IY= 2	2.135E+03	1.670E+03	1.017E+03	7.030E+02	4.374E-01	5.717E-04	2.162E-03	1.683E-03	8.078E-04	3.488E-05
IY= 1	1.730E+01	1.096E+01	4.330E+00	3.166E-01	6.117E+00	6.379E-04	6.973E-04	4.943E-04	2.381E-04	2.704E-04
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF EP

IY= 12	1.721E-09	1.806E-09	1.639E-09	1.351E-09	1.003E-09	6.427E-10	3.862E-10	1.259E-10	1.000E-10	1.000E-10
IY= 11	2.934E-08	3.138E-08	3.077E-08	2.866E-08	2.531E-08	1.414E-08	7.595E-09	1.230E-09	1.237E-10	1.000E-10
IY= 10	1.273E-06	1.456E-06	1.522E-06	1.537E-06	1.544E-06	5.364E-07	1.088E-07	6.596E-09	2.715E-10	1.000E-10
IY= 9	3.056E-05	3.104E-05	3.137E-05	3.178E-05	3.276E-05	9.077E-06	1.186E-06	2.777E-08	1.230E-09	4.878E-10
IY= 8	1.529E+02	7.859E+01	2.395E+01	2.648E+00	1.697E+00	7.221E-06	2.123E-06	6.602E-08	4.364E-09	2.321E-09
IY= 7	1.143E+05	6.949E+04	2.714E+04	1.249E+04	1.013E-02	6.239E-06	3.617E-06	1.703E-07	2.216E-08	1.343E-08
IY= 6	4.036E+05	2.051E+05	6.239E+04	1.927E+04	5.052E-01	5.605E-06	6.544E-06	5.217E-07	1.345E-07	7.052E-08
IY= 5	8.031E+05	3.955E+05	9.760E+04	2.395E+04	1.205E+00	5.290E-06	9.028E-06	9.356E-07	3.270E-07	1.597E-07
IY= 4	7.857E+05	3.819E+05	9.524E+04	2.402E+04	1.154E+00	5.267E-06	1.281E-05	1.894E-06	9.327E-07	3.559E-07
IY= 3	3.692E+05	1.849E+05	5.805E+04	1.983E+04	4.220E-01	5.476E-06	2.903E-05	1.247E-05	7.527E-06	8.264E-07
IY= 2	8.761E+04	5.376E+04	2.295E+04	1.247E+04	3.991E-01	5.163E-06	8.679E-05	7.884E-05	3.572E-05	1.128E-06
IY= 1	9.673E+01	4.878E+01	1.211E+01	2.394E-01	2.060E+01	1.387E-05	2.475E-05	1.477E-05	4.939E-06	5.976E-06
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 11	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 10	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 9	2.963E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 8	4.389E+05	4.005E+05	3.714E+05	3.665E+05	3.819E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 7	4.997E+05	4.621E+05	4.057E+05	3.805E+05	3.829E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 6	5.803E+05	5.275E+05	4.360E+05	3.865E+05	3.692E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 5	6.687E+05	5.701E+05	4.532E+05	3.905E+05	3.587E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 4	6.588E+05	5.642E+05	4.523E+05	3.928E+05	3.631E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 3	5.653E+05	5.118E+05	4.339E+05	3.948E+05	3.911E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 2	4.696E+05	4.398E+05	4.010E+05	3.879E+05	3.987E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 1	3.990E+05	3.685E+05	3.583E+05	3.689E+05	4.121E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF VIST

IY= 12	1.240E-06	1.173E-06	9.411E-07	6.256E-07	3.178E-07	8.973E-08	5.535E-08	1.576E-08	8.044E-11	9.000E-12

IY= 11	7.568E-06	7.340E-06	6.560E-06	5.387E-06	3.952E-06	1.741E-06	9.548E-07	1.364E-07	2.682E-09	9.000E-12
IY= 10	9.167E-05	9.811E-05	9.886E-05	9.594E-05	8.982E-05	3.706E-05	1.024E-05	6.298E-07	1.930E-08	1.393E-09
IY= 9	2.787E-03	2.802E-03	2.812E-03	2.824E-03	2.853E-03	8.017E-04	1.041E-04	2.311E-06	1.126E-07	4.005E-08
IY= 8	3.245E-01	2.599E-01	1.749E-01	8.394E-02	7.111E-02	6.372E-03	2.575E-04	5.115E-06	3.797E-07	1.960E-07
IY= 7	5.232E+00	5.129E+00	4.208E+00	3.459E+00	1.268E-02	6.069E-03	3.573E-04	1.212E-05	1.726E-06	1.097E-06
IY= 6	7.468E+00	6.944E+00	5.183E+00	3.805E+00	4.667E-02	5.856E-03	5.445E-04	3.348E-05	9.361E-06	5.766E-06
IY= 5	7.775E+00	7.306E+00	5.162E+00	3.670E+00	6.236E-02	5.744E-03	7.066E-04	5.744E-05	2.184E-05	1.339E-05
IY= 4	7.709E+00	7.240E+00	5.153E+00	3.725E+00	6.146E-02	5.736E-03	9.511E-04	1.094E-04	5.833E-05	3.082E-05
IY= 3	7.228E+00	6.728E+00	5.139E+00	3.976E+00	4.395E-02	5.810E-03	1.928E-03	5.966E-04	3.898E-04	7.407E-05
IY= 2	4.682E+00	4.669E+00	4.059E+00	3.566E+00	4.314E-02	5.698E-03	4.846E-03	3.233E-03	1.644E-03	9.706E-05
IY= 1	2.785E-01	2.217E-01	1.393E-01	3.768E-02	1.634E-01	2.640E-03	1.768E-03	1.489E-03	1.033E-03	1.101E-03
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 11	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 10	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 9	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 8	8.014E-01	8.781E-01	9.467E-01	9.591E-01	9.204E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 7	7.037E-01	7.609E-01	8.666E-01	9.237E-01	9.181E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 6	5.978E-01	6.666E-01	8.064E-01	9.094E-01	9.520E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 5	5.260E-01	6.169E-01	7.757E-01	9.001E-01	9.799E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 4	5.339E-01	6.233E-01	7.773E-01	8.948E-01	9.681E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 3	6.221E-01	6.871E-01	8.102E-01	8.903E-01	8.988E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 2	7.488E-01	7.994E-01	8.767E-01	9.062E-01	8.817E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 1	8.812E-01	9.540E-01	9.812E-01	9.529E-01	8.531E-01	1.201E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF TMP1

IY= 12	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 11	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 10	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 9	2.951E+02	2.951E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 8	4.371E+02	3.989E+02	3.699E+02	3.651E+02	3.804E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 7	4.977E+02	4.603E+02	4.041E+02	3.790E+02	3.814E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 6	5.860E+02	5.254E+02	4.343E+02	3.850E+02	3.677E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 5	6.661E+02	5.679E+02	4.514E+02	3.890E+02	3.573E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 4	6.561E+02	5.619E+02	4.505E+02	3.913E+02	3.616E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 3	5.631E+02	5.097E+02	4.322E+02	3.932E+02	3.895E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 2	4.677E+02	4.381E+02	3.994E+02	3.863E+02	3.971E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IY= 1	3.974E+02	3.671E+02	3.569E+02	3.674E+02	4.104E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

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TIME STP= 1 SWEEP NO= 180 ZSLAB NO= 31 ITERN NO= 1

FLOW FIELD AT ITHYD= 1, IZ= 31, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	-6.760E+00	-1.177E+01	2.995E+00	2.855E+01	3.741E+01	4.029E-01	-8.333E+00	-6.798E+00	-5.932E+00	-5.106E+00
IY= 11	-3.058E+01	-2.670E+01	-1.610E+01	-7.104E+00	-8.133E+00	-8.410E+00	-1.110E+01	-7.677E+00	-6.302E+00	-5.402E+00
IY= 10	1.039E+01	1.171E+01	1.672E+01	1.783E+01	9.734E+00	-8.346E+00	-1.057E+01	-7.902E+00	-6.320E+00	-5.405E+00
IY= 9	1.364E+02	1.383E+02	1.442E+02	1.422E+02	1.055E+02	-1.187E+01	-1.023E+01	-7.937E+00	-6.267E+00	-5.344E+00
IY= 8	3.553E+02	3.571E+02	3.635E+02	3.731E+02	3.805E+02	-2.132E+01	-1.043E+01	-7.948E+00	-6.171E+00	-5.274E+00
IY= 7	5.737E+02	5.741E+02	5.791E+02	5.954E+02	6.182E+02	-1.545E+01	-1.037E+01	-8.003E+00	-6.086E+00	-5.234E+00
IY= 6	7.807E+02	7.786E+02	7.756E+02	7.904E+02	8.228E+02	-1.148E+01	-1.005E+01	-8.120E+00	-6.052E+00	-5.152E+00
IY= 5	9.215E+02	9.174E+02	9.030E+02	9.028E+02	9.318E+02	-9.411E+00	-9.652E+00	-8.219E+00	-6.201E+00	-5.205E+00
IY= 4	1.011E+03	1.005E+03	9.831E+02	9.760E+02	1.004E+03	-7.899E+00	-9.247E+00	-8.153E+00	-6.204E+00	-5.225E+00
IY= 3	1.108E+03	1.100E+03	1.069E+03	1.049E+03	1.082E+03	-5.880E+00	-8.599E+00	-7.797E+00	-5.799E+00	-5.015E+00
IY= 2	1.187E+03	1.177E+03	1.132E+03	1.091E+03	1.106E+03	-4.225E+00	-7.955E+00	-7.320E+00	-5.057E+00	-4.469E+00
IY= 1	1.212E+03	1.197E+03	1.144E+03	1.095E+03	1.088E+03	-3.658E+00	-7.616E+00	-6.908E+00	-4.172E+00	-3.717E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF U1

IY= 12	-2.408E+00	-4.690E+00	-4.968E+00	-3.218E+00	2.457E+00	2.403E+00	3.693E-01	-5.251E-01	-5.171E-01
IY= 11	-1.390E+00	-3.016E+00	-3.655E+00	-2.853E+00	-5.952E-02	-7.978E-01	-7.237E-01	-9.611E-01	-8.252E-01
IY= 10	-7.262E-01	-1.813E+00	-2.290E+00	-1.813E+00	2.092E+00	-1.460E+00	-1.265E+00	-1.221E+00	-9.654E-01
IY= 9	-2.911E-01	-7.260E-01	-1.030E+00	-6.838E-01	3.986E+00	-1.703E+00	-1.422E+00	-1.309E+00	-9.858E-01
IY= 8	9.768E-03	-2.760E-01	-9.672E-01	-1.766E+00	-2.253E-08	-2.441E+00	-1.425E+00	-1.293E+00	-9.447E-01
IY= 7	-1.094E-01	-4.897E-01	-1.379E+00	-2.331E+00	-1.532E-08	-2.125E+00	-1.495E+00	-1.261E+00	-8.991E-01
IY= 6	4.136E-02	-2.036E-01	-1.273E+00	-2.615E+00	-1.097E-08	-2.060E+00	-1.799E+00	-1.434E+00	-1.065E+00
IY= 5	2.721E-01	3.312E-01	-6.408E-01	-2.387E+00	-5.580E-09	-2.180E+00	-2.280E+00	-1.789E+00	-1.228E+00
IY= 4	4.162E-01	6.715E-01	-2.604E-01	-2.181E+00	-3.578E-09	-2.237E+00	-2.531E+00	-2.078E+00	-1.418E+00
IY= 3	6.052E-01	1.180E+00	4.474E-01	-1.658E+00	-3.378E-09	-2.313E+00	-2.855E+00	-2.480E+00	-1.675E+00
IY= 2	9.348E-01	2.153E+00	2.262E+00	1.109E+00	1.273E-08	-2.561E+00	-3.219E+00	-2.837E+00	-1.886E+00
IY= 1	1.213E+00	3.473E+00	4.559E+00	4.998E+00	7.262E-08	-3.113E+00	-3.876E+00	-3.553E+00	-2.585E+00
IX=	1	2	3	4	5	6	7	8	9

FIELD VALUES OF V1

IY= 11	-7.384E-01	2.121E+00	7.172E+00	1.229E+01	1.761E+01	2.531E+00	-1.410E+00	-7.946E-01	-4.955E-01	-3.759E-01
IY= 10	6.078E+00	8.113E+00	1.371E+01	1.983E+01	2.613E+01	4.058E+00	-8.942E-01	-6.419E-01	-3.852E-01	-2.444E-01
IY= 9	1.492E+01	1.643E+01	2.086E+01	2.641E+01	3.333E+01	5.079E+00	-3.722E-01	-3.843E-01	-1.964E-01	-7.390E-02
IY= 8	2.191E+01	2.286E+01	2.569E+01	3.005E+01	3.751E+01	4.275E+00	4.090E-02	-1.686E-01	-2.358E-02	5.060E-02
IY= 7	2.065E+01	2.141E+01	2.376E+01	2.737E+01	3.377E+01	3.676E+00	4.795E-01	-6.363E-02	3.715E-02	5.517E-02

IY= 6	1.835E+01	1.890E+01	2.066E+01	2.347E+01	2.905E+01	3.160E+00	7.291E-01	1.178E-03	-4.939E-02	-1.984E-01
IY= 5	1.496E+01	1.539E+01	1.663E+01	1.869E+01	2.361E+01	2.637E+00	7.819E-01	-1.549E-02	-3.399E-01	-5.956E-01
IY= 4	1.262E+01	1.300E+01	1.405E+01	1.568E+01	2.020E+01	2.317E+00	7.199E-01	-3.275E-02	-4.943E-01	-8.369E-01
IY= 3	1.022E+01	1.055E+01	1.139E+01	1.257E+01	1.690E+01	1.991E+00	6.198E-01	-6.742E-02	-5.995E-01	-1.016E+00
IY= 2	6.282E+00	6.441E+00	6.770E+00	6.919E+00	1.115E+01	1.397E+00	3.652E-01	-1.499E-01	-5.729E-01	-1.005E+00
IY= 1	2.773E+00	2.730E+00	2.757E+00	2.313E+00	6.351E+00	7.642E-01	1.627E-01	-1.158E-01	-3.481E-01	-7.319E-01
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	4.606E+00	8.148E+00	1.272E+01	1.460E+01	1.357E+01	8.117E-01	3.430E-01	7.503E-01	3.810E-01	-8.445E-08
IY= 11	1.598E+01	1.906E+01	2.322E+01	2.390E+01	1.952E+01	3.609E+00	2.151E+00	1.489E+00	7.523E-01	2.096E-01
IY= 10	3.412E+01	3.497E+01	3.556E+01	3.297E+01	2.380E+01	5.569E+00	2.794E+00	1.922E+00	1.027E+00	3.737E-01
IY= 9	5.824E+01	5.622E+01	5.035E+01	4.209E+01	2.572E+01	5.931E+00	3.087E+00	2.143E+00	1.158E+00	4.221E-01
IY= 8	8.349E+01	7.775E+01	6.385E+01	4.856E+01	2.412E+01	2.740E+00	3.024E+00	2.255E+00	1.146E+00	3.403E-01
IY= 7	8.418E+01	7.846E+01	6.365E+01	4.711E+01	1.938E+01	1.792E+00	2.579E+00	2.247E+00	9.936E-01	9.411E-03
IY= 6	8.286E+01	7.641E+01	6.047E+01	4.309E+01	1.244E+01	1.012E+00	1.858E+00	1.811E+00	5.968E-01	-4.720E-01
IY= 5	7.637E+01	7.006E+01	5.454E+01	3.735E+01	4.337E+00	3.569E-01	9.302E-01	1.029E+00	1.458E-01	-7.554E-01
IY= 4	7.125E+01	6.548E+01	5.085E+01	3.414E+01	1.575E-01	4.785E-02	4.466E-01	3.974E-01	-3.594E-01	-1.078E+00
IY= 3	6.393E+01	5.890E+01	4.559E+01	2.979E+01	-3.696E+00	-2.314E-01	-1.914E-01	-5.451E-01	-1.251E+00	-1.659E+00
IY= 2	5.370E+01	4.927E+01	3.734E+01	2.270E+01	-8.831E+00	-6.508E-01	-8.899E-01	-1.390E+00	-2.048E+00	-2.289E+00
IY= 1	4.719E+01	4.074E+01	2.834E+01	1.295E+01	-1.062E+01	-1.063E+00	-1.625E+00	-2.254E+00	-2.894E+00	-3.014E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF KE

IY= 12	4.088E+01	3.023E+01	3.478E+01	3.375E+01	1.106E+01	3.567E+00	1.048E+00	5.637E-02	1.000E-10	1.000E-10
IY= 11	5.173E+01	4.520E+01	5.783E+01	5.729E+01	1.084E+01	2.308E+00	3.537E-01	1.396E-02	1.861E-10	1.000E-10
IY= 10	9.401E+01	9.327E+01	1.046E+02	1.037E+02	1.353E+01	3.007E+00	7.865E-02	2.592E-03	5.438E-09	1.384E-09
IY= 9	1.717E+02	1.666E+02	1.767E+02	1.755E+02	1.470E+01	2.430E+00	1.832E-02	3.123E-04	1.156E-04	4.192E-04
IY= 8	2.438E+02	2.575E+02	2.883E+02	2.791E+02	7.131E+00	1.026E-01	1.253E-01	9.782E-04	3.063E-03	8.431E-03
IY= 7	4.145E+02	4.282E+02	4.351E+02	3.795E+02	5.365E+00	6.786E-02	3.326E-01	2.540E-02	3.228E-02	1.149E-01
IY= 6	4.645E+02	4.792E+02	4.795E+02	4.142E+02	3.458E+00	4.453E-02	6.675E-01	2.350E-01	1.905E-01	5.162E-01
IY= 5	4.699E+02	4.815E+02	4.746E+02	4.152E+02	2.117E+00	3.057E-02	1.029E+00	7.087E-01	5.072E-01	7.389E-01
IY= 4	4.547E+02	4.634E+02	4.536E+02	4.005E+02	1.502E+00	2.322E-02	1.104E+00	9.820E-01	8.237E-01	9.486E-01
IY= 3	4.141E+02	4.207E+02	4.117E+02	3.715E+02	9.541E-01	1.519E-02	1.177E+00	1.232E+00	1.192E+00	1.162E+00
IY= 2	2.922E+02	3.004E+02	3.001E+02	2.943E+02	7.184E-01	8.702E-03	1.076E+00	1.332E+00	1.526E+00	1.462E+00
IY= 1	8.434E+00	6.439E+00	3.337E+00	8.675E-01	6.375E-01	1.598E-02	8.340E-02	1.038E-01	9.838E-02	8.808E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF EP

IY= 12	2.041E+02	1.662E+02	2.112E+02	2.125E+02	5.077E+01	1.063E+01	2.188E+00	8.495E-02	1.000E-10	1.000E-10
IY= 11	3.969E+02	3.301E+02	4.143E+02	4.110E+02	4.866E+01	7.074E+00	5.778E-01	1.688E-02	1.000E-10	1.000E-10
IY= 10	9.142E+02	8.308E+02	8.526E+02	8.282E+02	6.206E+01	1.150E+01	1.050E-01	2.631E-03	7.328E-10	2.375E-10
IY= 9	1.860E+03	1.663E+03	1.592E+03	1.540E+03	7.309E+01	1.014E+01	1.332E-02	2.621E-04	3.784E-05	1.469E-04

IY= 8	2.579E+03	2.641E+03	2.785E+03	2.663E+03	2.628E+01	1.241E-02	4.688E-02	2.978E-04	1.151E-03	3.406E-03
IY= 7	4.603E+03	4.631E+03	4.415E+03	3.781E+03	1.714E+01	6.677E-03	1.280E-01	7.807E-03	1.365E-02	5.493E-02
IY= 6	5.589E+03	5.551E+03	5.095E+03	4.280E+03	8.874E+00	3.549E-03	2.685E-01	8.697E-02	1.005E-01	3.147E-01
IY= 5	5.777E+03	5.661E+03	5.056E+03	4.328E+03	4.250E+00	2.019E-03	4.386E-01	3.095E-01	2.442E-01	4.567E-01
IY= 4	5.426E+03	5.295E+03	4.713E+03	4.117E+03	2.541E+00	1.336E-03	4.850E-01	4.640E-01	4.370E-01	5.849E-01
IY= 3	4.624E+03	4.546E+03	4.116E+03	3.759E+03	1.286E+00	7.071E-04	5.375E-01	6.073E-01	6.439E-01	6.813E-01
IY= 2	2.870E+03	2.921E+03	2.800E+03	2.925E+03	8.400E-01	3.066E-04	5.179E-01	6.941E-01	8.563E-01	8.461E-01
IY= 1	3.292E+01	2.196E+01	8.195E+00	1.086E+00	6.932E-01	1.739E-03	3.237E-02	4.498E-02	4.148E-02	3.514E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF H1

IY= 12	3.263E+05	3.292E+05	3.416E+05	3.536E+05	3.626E+05	3.227E+05	3.088E+05	2.973E+05	2.962E+05	2.962E+05
IY= 11	3.316E+05	3.364E+05	3.565E+05	3.730E+05	3.823E+05	3.102E+05	3.022E+05	2.965E+05	2.962E+05	2.962E+05
IY= 10	3.614E+05	3.693E+05	3.869E+05	4.030E+05	4.114E+05	3.140E+05	2.979E+05	2.963E+05	2.962E+05	2.962E+05
IY= 9	4.221E+05	4.231E+05	4.273E+05	4.344E+05	4.369E+05	3.139E+05	2.964E+05	2.962E+05	2.962E+05	2.962E+05
IY= 8	4.857E+05	4.789E+05	4.669E+05	4.583E+05	4.506E+05	2.971E+05	2.962E+05	2.962E+05	2.962E+05	2.962E+05
IY= 7	4.942E+05	4.883E+05	4.746E+05	4.631E+05	4.522E+05	2.973E+05	2.963E+05	2.962E+05	2.962E+05	2.962E+05
IY= 6	4.986E+05	4.916E+05	4.762E+05	4.637E+05	4.521E+05	2.976E+05	2.965E+05	2.962E+05	2.962E+05	2.962E+05
IY= 5	4.947E+05	4.880E+05	4.734E+05	4.617E+05	4.511E+05	2.979E+05	2.968E+05	2.963E+05	2.962E+05	2.962E+05
IY= 4	4.899E+05	4.839E+05	4.707E+05	4.600E+05	4.504E+05	2.980E+05	2.970E+05	2.965E+05	2.962E+05	2.962E+05
IY= 3	4.818E+05	4.771E+05	4.662E+05	4.574E+05	4.496E+05	2.982E+05	2.974E+05	2.969E+05	2.965E+05	2.962E+05
IY= 2	4.683E+05	4.648E+05	4.575E+05	4.521E+05	4.476E+05	2.985E+05	2.981E+05	2.976E+05	2.970E+05	2.962E+05
IY= 1	4.528E+05	4.474E+05	4.434E+05	4.430E+05	4.443E+05	2.985E+05	2.981E+05	2.976E+05	2.968E+05	2.962E+05
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF VIST

IY= 12	7.370E-01	4.950E-01	5.156E-01	4.824E-01	2.168E-01	1.077E-01	4.519E-02	3.366E-03	9.000E-12	9.000E-12
IY= 11	6.068E-01	5.570E-01	7.265E-01	7.188E-01	2.173E-01	6.780E-02	1.949E-02	1.039E-03	3.118E-11	9.000E-12
IY= 10	8.702E-01	9.424E-01	1.154E+00	1.169E+00	2.654E-01	7.075E-02	5.302E-03	2.299E-04	3.632E-09	7.259E-10
IY= 9	1.427E+00	1.501E+00	1.764E+00	1.800E+00	2.661E-01	5.241E-02	2.267E-03	3.348E-05	3.176E-05	1.077E-04
IY= 8	2.074E+00	2.260E+00	2.686E+00	2.632E+00	1.742E-01	7.632E-02	3.013E-02	2.892E-04	7.335E-04	1.879E-03
IY= 7	3.358E+00	3.563E+00	3.860E+00	3.427E+00	1.511E-01	6.208E-02	7.775E-02	7.438E-03	6.868E-03	2.164E-02
IY= 6	3.475E+00	3.724E+00	4.062E+00	3.607E+00	1.213E-01	5.028E-02	1.494E-01	5.715E-02	3.250E-02	7.620E-02
IY= 5	3.439E+00	3.686E+00	4.011E+00	3.585E+00	9.491E-02	4.166E-02	2.172E-01	1.461E-01	9.481E-02	1.076E-01
IY= 4	3.430E+00	3.649E+00	3.929E+00	3.507E+00	7.996E-02	3.631E-02	2.262E-01	1.867E-01	1.395E-01	1.385E-01
IY= 3	3.338E+00	3.505E+00	3.706E+00	3.305E+00	6.372E-02	2.937E-02	2.322E-01	2.248E-01	1.986E-01	1.784E-01
IY= 2	2.678E+00	2.780E+00	2.895E+00	2.664E+00	5.529E-02	2.223E-02	2.013E-01	2.302E-01	2.446E-01	2.274E-01
IY= 1	1.945E-01	1.699E-01	1.223E-01	6.237E-02	5.276E-02	1.322E-02	1.934E-02	2.158E-02	2.100E-02	1.987E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	1.090E+00	1.080E+00	1.041E+00	1.006E+00	9.814E-01	1.102E+00	1.152E+00	1.196E+00	1.201E+00	1.201E+00
IY= 11	1.072E+00	1.057E+00	9.975E-01	9.535E-01	9.302E-01	1.146E+00	1.177E+00	1.199E+00	1.201E+00	1.201E+00

IY= 10	9.844E-01	9.634E-01	9.195E-01	8.828E-01	8.648E-01	1.133E+00	1.194E+00	1.201E+00	1.201E+00	1.201E+00
IY= 9	8.439E-01	8.419E-01	8.336E-01	8.200E-01	8.150E-01	1.133E+00	1.200E+00	1.201E+00	1.201E+00	1.201E+00
IY= 8	7.349E-01	7.454E-01	7.645E-01	7.791E-01	7.923E-01	1.197E+00	1.201E+00	1.201E+00	1.201E+00	1.201E+00
IY= 7	7.239E-01	7.326E-01	7.538E-01	7.726E-01	7.914E-01	1.196E+00	1.200E+00	1.201E+00	1.201E+00	1.201E+00
IY= 6	7.189E-01	7.291E-01	7.526E-01	7.730E-01	7.931E-01	1.195E+00	1.200E+00	1.201E+00	1.201E+00	1.201E+00
IY= 5	7.255E-01	7.355E-01	7.581E-01	7.773E-01	7.958E-01	1.194E+00	1.198E+00	1.200E+00	1.201E+00	1.201E+00
IY= 4	7.334E-01	7.424E-01	7.631E-01	7.807E-01	7.976E-01	1.193E+00	1.197E+00	1.200E+00	1.201E+00	1.201E+00
IY= 3	7.463E-01	7.536E-01	7.710E-01	7.856E-01	7.996E-01	1.193E+00	1.196E+00	1.198E+00	1.200E+00	1.201E+00
IY= 2	7.684E-01	7.741E-01	7.862E-01	7.952E-01	8.034E-01	1.191E+00	1.193E+00	1.195E+00	1.198E+00	1.201E+00
IY= 1	7.949E-01	8.045E-01	8.113E-01	8.116E-01	8.091E-01	1.192E+00	1.193E+00	1.195E+00	1.198E+00	1.201E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF TMP1

IY= 12	3.250E+02	3.279E+02	3.402E+02	3.522E+02	3.611E+02	3.214E+02	3.076E+02	2.961E+02	2.950E+02	2.950E+02
IY= 11	3.302E+02	3.351E+02	3.551E+02	3.715E+02	3.808E+02	3.090E+02	3.010E+02	2.954E+02	2.950E+02	2.950E+02
IY= 10	3.599E+02	3.678E+02	3.854E+02	4.014E+02	4.097E+02	3.128E+02	2.967E+02	2.951E+02	2.950E+02	2.950E+02
IY= 9	4.204E+02	4.214E+02	4.256E+02	4.326E+02	4.352E+02	3.127E+02	2.952E+02	2.950E+02	2.950E+02	2.950E+02
IY= 8	4.838E+02	4.769E+02	4.651E+02	4.564E+02	4.488E+02	2.959E+02	2.951E+02	2.950E+02	2.950E+02	2.950E+02
IY= 7	4.922E+02	4.863E+02	4.727E+02	4.613E+02	4.504E+02	2.961E+02	2.952E+02	2.950E+02	2.950E+02	2.950E+02
IY= 6	4.966E+02	4.897E+02	4.743E+02	4.619E+02	4.503E+02	2.964E+02	2.953E+02	2.950E+02	2.950E+02	2.950E+02
IY= 5	4.928E+02	4.861E+02	4.715E+02	4.598E+02	4.493E+02	2.967E+02	2.956E+02	2.952E+02	2.950E+02	2.950E+02
IY= 4	4.879E+02	4.820E+02	4.688E+02	4.582E+02	4.486E+02	2.969E+02	2.958E+02	2.953E+02	2.951E+02	2.950E+02
IY= 3	4.799E+02	4.752E+02	4.644E+02	4.556E+02	4.478E+02	2.970E+02	2.962E+02	2.957E+02	2.953E+02	2.950E+02
IY= 2	4.665E+02	4.630E+02	4.557E+02	4.503E+02	4.458E+02	2.973E+02	2.969E+02	2.964E+02	2.958E+02	2.950E+02
IY= 1	4.510E+02	4.456E+02	4.416E+02	4.412E+02	4.425E+02	2.973E+02	2.969E+02	2.964E+02	2.956E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

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TIME STP= 1 SWEEP NO= 180 ZSLAB NO= 32 ITERN NO= 1

FLOW FIELD AT ITHYD= 1, IZ= 32, ISWEEP= 180, ISTEP= 1

FIELD VALUES OF P1

IY= 12	2.977E+01	2.736E+01	4.909E+01	8.031E+01	9.567E+01	3.178E+01	-7.945E+00	-7.665E+00	-6.294E+00	-5.257E+00
IY= 11	2.747E+01	2.440E+01	3.094E+01	3.683E+01	3.009E+01	6.943E+00	-1.472E+01	-9.222E+00	-6.908E+00	-5.532E+00
IY= 10	7.293E+01	7.078E+01	6.885E+01	6.125E+01	4.070E+01	6.505E-01	-1.301E+01	-9.321E+00	-6.992E+00	-5.500E+00
IY= 9	2.095E+02	2.078E+02	2.022E+02	1.868E+02	1.357E+02	-1.185E+01	-1.208E+01	-9.105E+00	-6.845E+00	-5.370E+00
IY= 8	4.316E+02	4.273E+02	4.137E+02	4.030E+02	4.053E+02	-2.734E+01	-1.204E+01	-8.933E+00	-6.618E+00	-5.315E+00
IY= 7	6.559E+02	6.485E+02	6.244E+02	6.090E+02	6.269E+02	-1.898E+01	-1.175E+01	-8.844E+00	-6.389E+00	-5.226E+00
IY= 6	8.868E+02	8.751E+02	8.316E+02	7.988E+02	8.207E+02	-1.355E+01	-1.121E+01	-8.825E+00	-6.200E+00	-5.114E+00
IY= 5	1.055E+03	1.040E+03	9.765E+02	9.164E+02	9.322E+02	-1.092E+01	-1.069E+01	-8.833E+00	-6.163E+00	-5.045E+00

IY= 8	2.023E-01	1.945E-01	1.854E-01	1.776E-01	1.656E-01	8.393E-02	7.708E-02	1.426E-01	2.175E-01	3.819E-01
IY= 7	7.048E-02	6.928E-02	6.137E-02	5.633E-02	5.585E-02	5.692E-02	6.543E-02	1.120E-01	1.813E-01	3.508E-01
IY= 6	6.757E-02	6.747E-02	5.940E-02	5.232E-02	4.867E-02	4.781E-02	5.125E-02	8.554E-02	1.607E-01	3.243E-01
IY= 5	5.214E-02	5.584E-02	5.289E-02	4.955E-02	4.913E-02	5.166E-02	5.408E-02	7.538E-02	1.559E-01	3.155E-01
IY= 4	4.513E-02	4.992E-02	4.911E-02	4.865E-02	5.087E-02	5.615E-02	6.903E-02	8.636E-02	1.548E-01	3.076E-01
IY= 3	3.898E-02	4.510E-02	4.598E-02	4.724E-02	5.191E-02	6.021E-02	9.079E-02	1.222E-01	1.756E-01	2.993E-01
IY= 2	2.452E-02	3.249E-02	3.658E-02	4.032E-02	4.813E-02	6.009E-02	1.088E-01	1.629E-01	2.417E-01	3.256E-01
IY= 1	5.483E-03	8.252E-03	1.255E-02	1.491E-02	1.600E-02	1.683E-02	1.834E-02	1.974E-02	1.887E-02	1.757E-02
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF RHO1

IY= 12	8.416E-01	8.394E-01	8.348E-01	8.325E-01	8.343E-01	9.139E-01	9.583E-01	9.776E-01	9.867E-01	1.201E+00
IY= 11	8.417E-01	8.410E-01	8.412E-01	8.449E-01	8.535E-01	9.457E-01	9.965E-01	1.009E+00	1.009E+00	1.201E+00
IY= 10	8.657E-01	8.657E-01	8.701E-01	8.784E-01	8.918E-01	9.943E-01	1.053E+00	1.057E+00	1.040E+00	1.201E+00
IY= 9	9.448E-01	9.438E-01	9.484E-01	9.565E-01	9.687E-01	1.083E+00	1.132E+00	1.096E+00	1.067E+00	1.201E+00
IY= 8	1.195E+00	1.192E+00	1.188E+00	1.184E+00	1.178E+00	1.174E+00	1.159E+00	1.114E+00	1.082E+00	1.201E+00
IY= 7	1.195E+00	1.192E+00	1.189E+00	1.185E+00	1.181E+00	1.175E+00	1.159E+00	1.127E+00	1.094E+00	1.201E+00
IY= 6	1.195E+00	1.192E+00	1.189E+00	1.186E+00	1.182E+00	1.177E+00	1.164E+00	1.141E+00	1.104E+00	1.201E+00
IY= 5	1.195E+00	1.193E+00	1.190E+00	1.187E+00	1.184E+00	1.179E+00	1.167E+00	1.148E+00	1.111E+00	1.201E+00
IY= 4	1.195E+00	1.193E+00	1.190E+00	1.188E+00	1.185E+00	1.181E+00	1.169E+00	1.152E+00	1.120E+00	1.201E+00
IY= 3	1.195E+00	1.193E+00	1.191E+00	1.189E+00	1.186E+00	1.183E+00	1.173E+00	1.159E+00	1.143E+00	1.201E+00
IY= 2	1.196E+00	1.194E+00	1.193E+00	1.191E+00	1.190E+00	1.187E+00	1.181E+00	1.174E+00	1.171E+00	1.201E+00
IY= 1	1.196E+00	1.196E+00	1.195E+00	1.195E+00	1.194E+00	1.194E+00	1.193E+00	1.192E+00	1.194E+00	1.201E+00
IX=	1	2	3	4	5	6	7	8	9	10

FIELD VALUES OF TMP1

IY= 12	4.219E+02	4.230E+02	4.253E+02	4.264E+02	4.254E+02	3.881E+02	3.698E+02	3.624E+02	3.591E+02	2.950E+02
IY= 11	4.218E+02	4.222E+02	4.220E+02	4.200E+02	4.156E+02	3.748E+02	3.555E+02	3.510E+02	3.511E+02	2.950E+02
IY= 10	4.099E+02	4.099E+02	4.077E+02	4.037E+02	3.975E+02	3.564E+02	3.363E+02	3.350E+02	3.406E+02	2.950E+02
IY= 9	3.751E+02	3.755E+02	3.736E+02	3.704E+02	3.657E+02	3.272E+02	3.130E+02	3.232E+02	3.321E+02	2.950E+02
IY= 8	2.964E+02	2.970E+02	2.980E+02	2.992E+02	3.005E+02	3.018E+02	3.058E+02	3.181E+02	3.274E+02	2.950E+02
IY= 7	2.964E+02	2.970E+02	2.978E+02	2.988E+02	3.000E+02	3.014E+02	3.056E+02	3.142E+02	3.237E+02	2.950E+02
IY= 6	2.965E+02	2.971E+02	2.978E+02	2.986E+02	2.996E+02	3.010E+02	3.044E+02	3.105E+02	3.209E+02	2.950E+02
IY= 5	2.964E+02	2.970E+02	2.977E+02	2.984E+02	2.992E+02	3.004E+02	3.035E+02	3.086E+02	3.190E+02	2.950E+02
IY= 4	2.964E+02	2.969E+02	2.975E+02	2.982E+02	2.990E+02	3.000E+02	3.029E+02	3.076E+02	3.164E+02	2.950E+02
IY= 3	2.964E+02	2.968E+02	2.974E+02	2.980E+02	2.986E+02	2.995E+02	3.020E+02	3.056E+02	3.100E+02	2.950E+02
IY= 2	2.962E+02	2.966E+02	2.969E+02	2.973E+02	2.978E+02	2.984E+02	3.000E+02	3.018E+02	3.027E+02	2.950E+02
IY= 1	2.961E+02	2.962E+02	2.963E+02	2.964E+02	2.966E+02	2.967E+02	2.970E+02	2.972E+02	2.968E+02	2.950E+02
IX=	1	2	3	4	5	6	7	8	9	10

TIME STEP = 1 SWEEP = 180

TOTAL RESIDUAL/(1.000E-06) FOR P1 IS 3.185E+04

TOTAL RESIDUAL/(1.000E-06) FOR U1 IS 6.088E+06

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TOTAL RESIDUAL/( 1.000E-06) FOR V1    IS  6.144E+06
TOTAL RESIDUAL/( 1.000E-06) FOR W1    IS  8.323E+06
TOTAL RESIDUAL/( 1.000E-06) FOR KE    IS  2.930E+08
TOTAL RESIDUAL/( 1.000E-06) FOR EP    IS  2.430E+10
TOTAL RESIDUAL/( 1.000E-06) FOR H1    IS  2.630E+10
WHOLE-FIELD RESIDUALS BEFORE SOLUTIONS
WHOLE-FIELD SUM OF ABS(VOL.FLOW RESIDUALS)=  3.185E+04
WHOLE-FIELD SUM OF ABS(RESIDUALS) OF U1   =  6.088E+06
WHOLE-FIELD SUM OF ABS(RESIDUALS) OF V1   =  6.144E+06
WHOLE-FIELD SUM OF ABS(RESIDUALS) OF W1   =  8.323E+06
WHOLE-FIELD SUM OF ABS(RESIDUALS) OF KE   =  2.930E+08
WHOLE-FIELD SUM OF ABS(RESIDUALS) OF EP   =  2.430E+10
WHOLE-FIELD SUM OF ABS(RESIDUALS) OF H1   =  2.630E+10
* SUMS HAVE BEEN DIVIDED BY RESREF(NAME)

NET SOURCE OF U1   AT PATCH NAMED: NWALL3    =-4.696E+00
NET SOURCE OF U1   AT PATCH NAMED: SWALL3    = 1.728E-01
NET SOURCE OF U1   AT PATCH NAMED: NWALL4    =-1.275E-02
NET SOURCE OF U1   AT PATCH NAMED: SWALL4    =-3.272E-01
NET SOURCE OF U1   AT PATCH NAMED: NWALL5    =-2.179E-02
NET SOURCE OF U1   AT PATCH NAMED: SWALL5    =-1.757E-01
NET SOURCE OF U1   AT PATCH NAMED: NWALL6    =-2.196E-02
NET SOURCE OF U1   AT PATCH NAMED: SWALL6    =-2.144E-01
NET SOURCE OF U1   AT PATCH NAMED: NWALL7    =-1.102E-02
NET SOURCE OF U1   AT PATCH NAMED: SWALL7    =-1.960E-01
NET SOURCE OF U1   AT PATCH NAMED: NWALL8    =-6.524E-03
NET SOURCE OF U1   AT PATCH NAMED: SWALL8    =-1.813E-01
NET SOURCE OF U1   AT PATCH NAMED: SWALL9    = 2.277E+01
NET SOURCE OF U1   AT PATCH NAMED: HWALL10   = 0.000E+00
NET SOURCE OF U1   AT PATCH NAMED: LWALL10   = 8.569E-01
NET SOURCE OF U1   AT PATCH NAMED: HWALL11   = 1.661E+00
NET SOURCE OF U1   AT PATCH NAMED: LWALL11   =-2.399E-02
NET SOURCE OF U1   AT PATCH NAMED: HWALL12   =-9.981E-02
NET SOURCE OF U1   AT PATCH NAMED: LWALL12   =-6.374E-04
NET SOURCE OF U1   AT PATCH NAMED: HWALL13   =-1.000E+00
NET SOURCE OF U1   AT PATCH NAMED: LWALL13   =-1.895E-02
NET SOURCE OF U1   AT PATCH NAMED: HWALL14   =-6.707E-01
NET SOURCE OF U1   AT PATCH NAMED: LWALL14   =-2.479E-02
NET SOURCE OF U1   AT PATCH NAMED: HWALL15   =-1.264E-01
NET SOURCE OF U1   AT PATCH NAMED: LWALL15   =-1.210E-02
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NET SOURCE OF U1    AT PATCH NAMED: HWALL16  =-3.465E-01
NET SOURCE OF U1    AT PATCH NAMED: LWALL16  =-1.209E-02
NET SOURCE OF U1    AT PATCH NAMED: HWALL17  =-3.424E-01
NET SOURCE OF U1    AT PATCH NAMED: LWALL17  =-5.672E-03
NET SOURCE OF U1    AT PATCH NAMED: HWALL18  =-3.364E-01
NET SOURCE OF U1    AT PATCH NAMED: LWALL18  = 8.109E-02
NET SOURCE OF V1    AT PATCH NAMED: HWALL10  = 0.000E+00
NET SOURCE OF V1    AT PATCH NAMED: LWALL10  =-1.138E+00
NET SOURCE OF V1    AT PATCH NAMED: HWALL11  = 2.250E+00
NET SOURCE OF V1    AT PATCH NAMED: LWALL11  = 9.259E-03
NET SOURCE OF V1    AT PATCH NAMED: HWALL12  = 2.302E-01
NET SOURCE OF V1    AT PATCH NAMED: LWALL12  = 4.284E-04
NET SOURCE OF V1    AT PATCH NAMED: HWALL13  =-9.006E-01
NET SOURCE OF V1    AT PATCH NAMED: LWALL13  = 1.062E-03
NET SOURCE OF V1    AT PATCH NAMED: HWALL14  =-1.164E+00
NET SOURCE OF V1    AT PATCH NAMED: LWALL14  = 1.342E-04
NET SOURCE OF V1    AT PATCH NAMED: HWALL15  =-2.973E-01
NET SOURCE OF V1    AT PATCH NAMED: LWALL15  =-4.722E-07
NET SOURCE OF V1    AT PATCH NAMED: HWALL16  =-8.432E-01
NET SOURCE OF V1    AT PATCH NAMED: LWALL16  =-6.630E-07
NET SOURCE OF V1    AT PATCH NAMED: HWALL17  =-9.907E-01
NET SOURCE OF V1    AT PATCH NAMED: LWALL17  =-6.934E-07
NET SOURCE OF V1    AT PATCH NAMED: HWALL18  =-1.293E+00
NET SOURCE OF V1    AT PATCH NAMED: LWALL18  =-1.613E-01
NET SOURCE OF V1    AT PATCH NAMED: EWALL19  = 8.668E-01
NET SOURCE OF V1    AT PATCH NAMED: WWALL19  = 3.758E-01
NET SOURCE OF V1    AT PATCH NAMED: EWALL20  =-8.752E-03
NET SOURCE OF V1    AT PATCH NAMED: WWALL20  = 3.321E-02
NET SOURCE OF V1    AT PATCH NAMED: EWALL21  = 1.254E-01
NET SOURCE OF V1    AT PATCH NAMED: WWALL21  = 1.022E-01
NET SOURCE OF V1    AT PATCH NAMED: EWALL22  = 5.847E-01
NET SOURCE OF V1    AT PATCH NAMED: WWALL22  = 1.480E-01
NET SOURCE OF V1    AT PATCH NAMED: EWALL23  = 1.075E-01
NET SOURCE OF V1    AT PATCH NAMED: WWALL23  = 9.808E-02
NET SOURCE OF V1    AT PATCH NAMED: EWALL24  = 1.694E-01
NET SOURCE OF V1    AT PATCH NAMED: WWALL24  = 9.045E-02
NET SOURCE OF V1    AT PATCH NAMED: EWALL25  = 1.168E-01
NET SOURCE OF V1    AT PATCH NAMED: WWALL25  = 1.518E-02
NET SOURCE OF V1    AT PATCH NAMED: EWALL26  =-2.047E+01
NET SOURCE OF V1    AT PATCH NAMED: WWALL26  =-3.995E-01
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NET SOURCE OF H1   AT PATCH NAMED: JETOUT   = 4.176E+04
NET SOURCE OF H1   AT PATCH NAMED: NWALL3   =-1.318E+02
NET SOURCE OF H1   AT PATCH NAMED: SWALL3   =-1.018E+00
NET SOURCE OF H1   AT PATCH NAMED: NWALL4   = 3.301E-03
NET SOURCE OF H1   AT PATCH NAMED: SWALL4   =-1.247E-08
NET SOURCE OF H1   AT PATCH NAMED: NWALL5   = 1.930E-03
NET SOURCE OF H1   AT PATCH NAMED: SWALL5   =-8.121E-09
NET SOURCE OF H1   AT PATCH NAMED: NWALL6   =-3.027E-03
NET SOURCE OF H1   AT PATCH NAMED: SWALL6   =-1.450E-08
NET SOURCE OF H1   AT PATCH NAMED: NWALL7   =-8.743E-03
NET SOURCE OF H1   AT PATCH NAMED: SWALL7   =-1.502E-08
NET SOURCE OF H1   AT PATCH NAMED: NWALL8   =-1.951E-02
NET SOURCE OF H1   AT PATCH NAMED: SWALL8   =-1.540E-08
NET SOURCE OF H1   AT PATCH NAMED: SWALL9   =-8.925E+01
NET SOURCE OF H1   AT PATCH NAMED: EWALL19  =-2.025E+00
NET SOURCE OF H1   AT PATCH NAMED: WWALL19  = 6.576E-02
NET SOURCE OF H1   AT PATCH NAMED: EWALL20  = 6.667E-02
NET SOURCE OF H1   AT PATCH NAMED: WWALL20  =-1.278E-01
NET SOURCE OF H1   AT PATCH NAMED: EWALL21  = 2.422E-01
NET SOURCE OF H1   AT PATCH NAMED: WWALL21  =-1.124E-01
NET SOURCE OF H1   AT PATCH NAMED: EWALL22  =-2.738E-01
NET SOURCE OF H1   AT PATCH NAMED: WWALL22  =-3.260E-01
NET SOURCE OF H1   AT PATCH NAMED: EWALL23  = 1.631E-02
NET SOURCE OF H1   AT PATCH NAMED: WWALL23  =-1.350E-01
NET SOURCE OF H1   AT PATCH NAMED: EWALL24  = 9.414E-02
NET SOURCE OF H1   AT PATCH NAMED: WWALL24  =-4.538E-02
NET SOURCE OF H1   AT PATCH NAMED: EWALL25  = 4.882E-04
NET SOURCE OF H1   AT PATCH NAMED: WWALL25  = 1.093E-01
NET SOURCE OF H1   AT PATCH NAMED: EWALL26  =-2.526E+01
NET SOURCE OF H1   AT PATCH NAMED: WWALL26  =-1.140E-01
NET SOURCE OF R1   AT PATCH NAMED: JETIN    =-3.849E+01
NET SOURCE OF R1   AT PATCH NAMED: JETOUT   = 3.849E+01
NET SOURCE OF R1   AT PATCH NAMED: OUTSIDE  = 4.153E+02
NET SOURCE OF R1   AT PATCH NAMED: TOPOUT   =-4.010E+02
NET SOURCE OF R1   AT PATCH NAMED: TOPP     = 2.728E+01
NET SOURCE OF R1   AT PATCH NAMED: FRONT    = 1.859E+01
NET SOURCE OF R1   AT PATCH NAMED: ENDEND   =-6.022E+01
NET SOURCE OF KE   AT PATCH NAMED: KESOURCE = 6.100E+05
NET SOURCE OF KE   AT PATCH NAMED: JETOUT   = 5.663E+02
NET SOURCE OF KE   AT PATCH NAMED: NWALL3   =-1.089E+10
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NET SOURCE OF KE	AT PATCH NAMED: SWALL3	=-1.308E+10
NET SOURCE OF KE	AT PATCH NAMED: NWALL4	= 3.850E+09
NET SOURCE OF KE	AT PATCH NAMED: SWALL4	=-8.111E+10
NET SOURCE OF KE	AT PATCH NAMED: NWALL5	= 4.497E+09
NET SOURCE OF KE	AT PATCH NAMED: SWALL5	=-6.297E+10
NET SOURCE OF KE	AT PATCH NAMED: NWALL6	= 4.516E+09
NET SOURCE OF KE	AT PATCH NAMED: SWALL6	=-1.940E+11
NET SOURCE OF KE	AT PATCH NAMED: NWALL7	= 1.865E+09
NET SOURCE OF KE	AT PATCH NAMED: SWALL7	=-2.437E+11
NET SOURCE OF KE	AT PATCH NAMED: NWALL8	= 6.060E+09
NET SOURCE OF KE	AT PATCH NAMED: SWALL8	=-2.845E+11
NET SOURCE OF KE	AT PATCH NAMED: SWALL9	=-6.320E+10
NET SOURCE OF KE	AT PATCH NAMED: HWALL10	= 0.000E+00
NET SOURCE OF KE	AT PATCH NAMED: LWALL10	=-2.005E+10
NET SOURCE OF KE	AT PATCH NAMED: HWALL11	= 8.344E+10
NET SOURCE OF KE	AT PATCH NAMED: LWALL11	=-3.567E+08
NET SOURCE OF KE	AT PATCH NAMED: HWALL12	= 1.310E+10
NET SOURCE OF KE	AT PATCH NAMED: LWALL12	=-1.620E+07
NET SOURCE OF KE	AT PATCH NAMED: HWALL13	= 7.155E+10
NET SOURCE OF KE	AT PATCH NAMED: LWALL13	=-8.321E+09
NET SOURCE OF KE	AT PATCH NAMED: HWALL14	= 9.199E+10
NET SOURCE OF KE	AT PATCH NAMED: LWALL14	=-4.843E+09
NET SOURCE OF KE	AT PATCH NAMED: HWALL15	= 6.299E+10
NET SOURCE OF KE	AT PATCH NAMED: LWALL15	=-4.610E+09
NET SOURCE OF KE	AT PATCH NAMED: HWALL16	= 1.840E+11
NET SOURCE OF KE	AT PATCH NAMED: LWALL16	=-2.695E+09
NET SOURCE OF KE	AT PATCH NAMED: HWALL17	= 2.265E+11
NET SOURCE OF KE	AT PATCH NAMED: LWALL17	=-7.609E+09
NET SOURCE OF KE	AT PATCH NAMED: HWALL18	= 2.606E+11
NET SOURCE OF KE	AT PATCH NAMED: LWALL18	= 8.358E+05
NET SOURCE OF KE	AT PATCH NAMED: EWALL19	=-4.326E+09
NET SOURCE OF KE	AT PATCH NAMED: WWALL19	= 3.294E+05
NET SOURCE OF KE	AT PATCH NAMED: EWALL20	= 6.936E+09
NET SOURCE OF KE	AT PATCH NAMED: WWALL20	=-8.349E+08
NET SOURCE OF KE	AT PATCH NAMED: EWALL21	=-2.170E+09
NET SOURCE OF KE	AT PATCH NAMED: WWALL21	=-3.718E+08
NET SOURCE OF KE	AT PATCH NAMED: EWALL22	=-2.567E+09
NET SOURCE OF KE	AT PATCH NAMED: WWALL22	=-2.501E+09
NET SOURCE OF KE	AT PATCH NAMED: EWALL23	=-4.046E+09
NET SOURCE OF KE	AT PATCH NAMED: WWALL23	=-9.862E+08

NET SOURCE OF KE	AT PATCH NAMED:	EWALL24	=-4.045E+09
NET SOURCE OF KE	AT PATCH NAMED:	WWALL24	=-2.089E+08
NET SOURCE OF KE	AT PATCH NAMED:	EWALL25	=-1.601E+10
NET SOURCE OF KE	AT PATCH NAMED:	WWALL25	=-2.325E+09
NET SOURCE OF KE	AT PATCH NAMED:	EWALL26	= 8.768E+10
NET SOURCE OF KE	AT PATCH NAMED:	WWALL26	=-6.721E+10
NET SOURCE OF EP	AT PATCH NAMED:	KESOURCE	= 1.133E+07
NET SOURCE OF EP	AT PATCH NAMED:	JETOUT	= 7.820E+03
NET SOURCE OF EP	AT PATCH NAMED:	NWALL3	=-5.265E+10
NET SOURCE OF EP	AT PATCH NAMED:	SWALL3	=-1.701E+09
NET SOURCE OF EP	AT PATCH NAMED:	NWALL4	= 4.308E+07
NET SOURCE OF EP	AT PATCH NAMED:	SWALL4	= 7.268E+09
NET SOURCE OF EP	AT PATCH NAMED:	NWALL5	= 3.073E+09
NET SOURCE OF EP	AT PATCH NAMED:	SWALL5	= 1.229E+11
NET SOURCE OF EP	AT PATCH NAMED:	NWALL6	= 3.223E+09
NET SOURCE OF EP	AT PATCH NAMED:	SWALL6	=-4.415E+10
NET SOURCE OF EP	AT PATCH NAMED:	NWALL7	=-2.665E+08
NET SOURCE OF EP	AT PATCH NAMED:	SWALL7	=-4.731E+10
NET SOURCE OF EP	AT PATCH NAMED:	NWALL8	=-3.209E+08
NET SOURCE OF EP	AT PATCH NAMED:	SWALL8	=-4.985E+10
NET SOURCE OF EP	AT PATCH NAMED:	SWALL9	=-8.699E+10
NET SOURCE OF EP	AT PATCH NAMED:	HWALL10	= 0.000E+00
NET SOURCE OF EP	AT PATCH NAMED:	LWALL10	=-3.445E+09
NET SOURCE OF EP	AT PATCH NAMED:	HWALL11	= 1.393E+11
NET SOURCE OF EP	AT PATCH NAMED:	LWALL11	=-5.023E+07
NET SOURCE OF EP	AT PATCH NAMED:	HWALL12	= 1.704E+09
NET SOURCE OF EP	AT PATCH NAMED:	LWALL12	=-9.436E+05
NET SOURCE OF EP	AT PATCH NAMED:	HWALL13	=-1.940E+10
NET SOURCE OF EP	AT PATCH NAMED:	LWALL13	=-8.445E+07
NET SOURCE OF EP	AT PATCH NAMED:	HWALL14	=-2.387E+10
NET SOURCE OF EP	AT PATCH NAMED:	LWALL14	=-2.964E+09
NET SOURCE OF EP	AT PATCH NAMED:	HWALL15	=-1.179E+11
NET SOURCE OF EP	AT PATCH NAMED:	LWALL15	=-3.043E+09
NET SOURCE OF EP	AT PATCH NAMED:	HWALL16	= 4.571E+10
NET SOURCE OF EP	AT PATCH NAMED:	LWALL16	= 2.794E+08
NET SOURCE OF EP	AT PATCH NAMED:	HWALL17	= 4.939E+10
NET SOURCE OF EP	AT PATCH NAMED:	LWALL17	= 3.393E+08
NET SOURCE OF EP	AT PATCH NAMED:	HWALL18	= 5.257E+10
NET SOURCE OF EP	AT PATCH NAMED:	LWALL18	= 1.705E+05
NET SOURCE OF EP	AT PATCH NAMED:	EWALL19	=-3.791E+09

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NET SOURCE OF EP   AT PATCH NAMED: WWALL19  = 3.923E+04
NET SOURCE OF EP   AT PATCH NAMED: EWALL20  =-1.307E+09
NET SOURCE OF EP   AT PATCH NAMED: WWALL20  =-1.358E+09
NET SOURCE OF EP   AT PATCH NAMED: EWALL21  =-2.908E+09
NET SOURCE OF EP   AT PATCH NAMED: WWALL21  =-6.725E+08
NET SOURCE OF EP   AT PATCH NAMED: EWALL22  =-4.983E+08
NET SOURCE OF EP   AT PATCH NAMED: WWALL22  =-5.020E+09
NET SOURCE OF EP   AT PATCH NAMED: EWALL23  =-2.539E+09
NET SOURCE OF EP   AT PATCH NAMED: WWALL23  =-1.797E+09
NET SOURCE OF EP   AT PATCH NAMED: EWALL24  =-2.346E+09
NET SOURCE OF EP   AT PATCH NAMED: WWALL24  =-5.114E+08
NET SOURCE OF EP   AT PATCH NAMED: EWALL25  =-5.531E+10
NET SOURCE OF EP   AT PATCH NAMED: WWALL25  =-4.568E+09
NET SOURCE OF EP   AT PATCH NAMED: EWALL26  = 1.886E+11
NET SOURCE OF EP   AT PATCH NAMED: WWALL26  =-7.827E+10
NET SOURCE OF H1   AT PATCH NAMED: JETIN    =-1.137E+07
NET SOURCE OF H1   AT PATCH NAMED: JETOUT   = 7.513E+07
NET SOURCE OF H1   AT PATCH NAMED: OUTSIDE  = 1.817E+08
NET SOURCE OF H1   AT PATCH NAMED: TOPOUT   =-1.751E+08
NET SOURCE OF H1   AT PATCH NAMED: TOPP     = 8.080E+06
NET SOURCE OF H1   AT PATCH NAMED: FRONT    = 5.505E+06
NET SOURCE OF H1   AT PATCH NAMED: ENDEND   =-3.304E+07

**********************************************************
SPOT VALUES VS. SWEEP (/ITHYD IF PARAB)
   IXMON=     1    IYMON=     4    IZMON=    16
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TABULATION OF ABSCISSA AND ORDINATES...

ISWP	P1	U1	V1	W1	KE	EP	H1
2.000E+00	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
3.000E+00	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
4.000E+00	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
5.000E+00	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
6.000E+00	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
7.000E+00	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
8.000E+00	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
9.000E+00	-3.060E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
1.000E+01	-3.060E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
1.100E+01	-3.060E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
1.200E+01	-3.060E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06

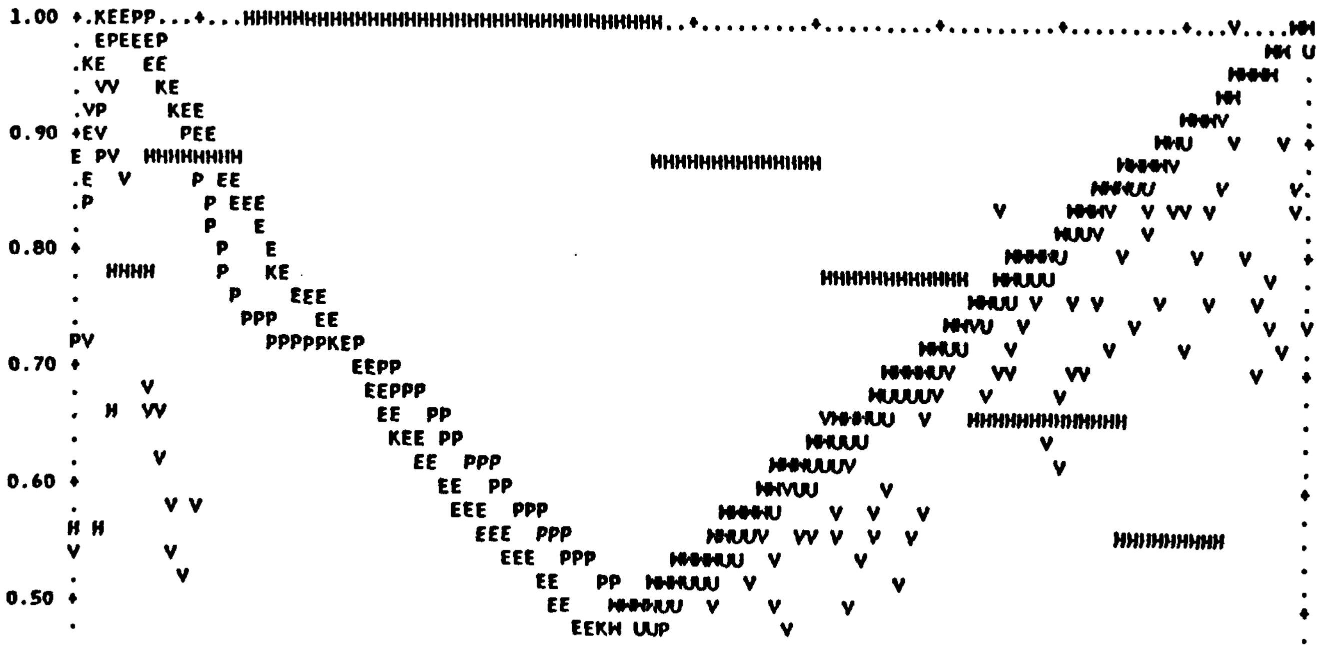
1.300E+01	-3.060E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
1.400E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
1.500E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
1.600E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
1.700E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
1.800E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
1.900E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.000E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.100E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.200E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.300E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.400E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.500E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.600E+01	-3.061E+03	1.374E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.700E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.800E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
2.900E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.477E+02	4.325E+04	1.901E+06
3.000E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.325E+04	1.901E+06
3.100E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.325E+04	1.901E+06
3.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.325E+04	1.901E+06
3.300E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
3.400E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
3.500E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
3.600E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
3.700E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
3.800E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
3.900E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.000E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.100E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.300E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.400E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.500E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.600E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.700E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.800E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
4.900E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.000E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.100E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06

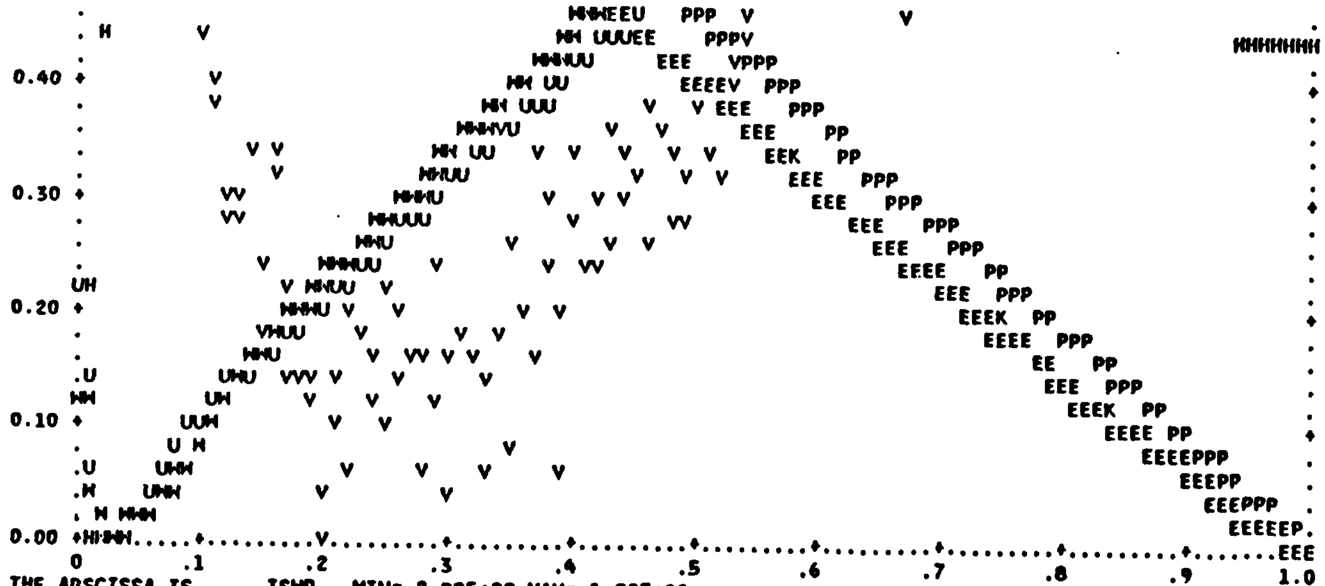
5.300E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.400E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.500E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.600E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.324E+04	1.901E+06
5.700E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
5.800E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
5.900E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.000E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.100E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.300E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.400E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.500E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.600E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.700E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.800E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
6.900E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.000E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.100E+01	-3.061E+03	1.375E+01	1.455E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.300E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.400E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.500E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.600E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.700E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.800E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
7.900E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.000E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.100E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.300E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.400E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.500E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06
8.600E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06
8.700E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06
8.800E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06
8.900E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06
9.000E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06
9.100E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06
9.200E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.322E+04	1.901E+06

9.300E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
9.400E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
9.500E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
9.600E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
9.700E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
9.800E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
9.900E+01	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.000E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.010E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.020E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.030E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.040E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.050E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.060E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.070E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.080E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.090E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.100E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.110E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.120E+02	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.130E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.140E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.150E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.160E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.170E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.180E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.190E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.200E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.210E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.220E+02	-3.061E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.322E+04	1.901E+06
1.230E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.240E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.250E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.260E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.270E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.280E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.290E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.300E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.310E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.320E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06

1.330E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.340E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.350E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.360E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.370E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.380E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.390E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.400E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.410E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.420E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.430E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.440E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.450E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.460E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.470E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.480E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.490E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.500E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.510E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.520E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.530E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.540E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.550E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.560E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.570E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.580E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.590E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.600E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.610E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.620E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.321E+04	1.901E+06
1.630E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.640E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.650E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.660E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.670E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.680E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.690E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.700E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.710E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.720E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06

1.730E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.740E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.750E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.760E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.770E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.780E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.475E+02	4.320E+04	1.901E+06
1.790E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.474E+02	4.320E+04	1.901E+06
1.800E+02	-3.062E+03	1.376E+01	1.456E+00	7.910E+02	1.474E+02	4.320E+04	1.901E+06
VARIABLE	P1	U1	V1	H1	KE	EP	H1
MINVAL=	-3.062E+03	1.374E+01	1.455E+00	7.910E+02	1.474E+02	4.320E+04	1.901E+06
MAXVAL=	-3.060E+03	1.376E+01	1.456E+00	7.910E+02	1.477E+02	4.326E+04	1.901E+06
CELLAV=	-3.061E+03	1.375E+01	1.456E+00	7.910E+02	1.476E+02	4.323E+04	1.901E+06





THE ABSCISSA IS ISWP. MIN= 2.00E+00 MAX= 1.80E+02
****

****
RESIDUALS VS. SWEEP (/ITHYD IF PARAB)

TABULATION OF ABSCISSA AND ORDINATES...

ISWP	P1	U1	V1	H1	KE	EP	H1
2.000E+00	8.007E+05	9.092E+06	1.282E+07	2.376E+07	1.210E+09	1.496E+11	5.642E+10
3.000E+00	3.733E+05	1.050E+07	1.474E+07	2.037E+07	1.424E+09	2.257E+11	5.306E+10
4.000E+00	2.556E+05	9.090E+06	8.827E+06	2.043E+07	1.336E+09	2.120E+11	4.366E+10
5.000E+00	1.736E+05	1.171E+07	9.937E+06	2.219E+07	1.085E+09	1.548E+11	4.110E+10
6.000E+00	1.286E+05	1.368E+07	1.107E+07	2.137E+07	8.167E+08	9.614E+10	3.814E+10
7.000E+00	1.061E+05	1.482E+07	1.126E+07	1.985E+07	6.396E+08	7.264E+10	3.672E+10

8.000E+00	9.129E+04	1.525E+07	1.067E+07	1.838E+07	5.732E+08	6.585E+10	3.617E+10
9.000E+00	8.285E+04	1.511E+07	9.628E+06	1.711E+07	5.199E+08	6.324E+10	3.557E+10
1.000E+01	8.083E+04	1.466E+07	8.391E+06	1.596E+07	4.558E+08	5.505E+10	3.529E+10
1.100E+01	8.200E+04	1.390E+07	7.327E+06	1.495E+07	3.865E+08	4.530E+10	3.510E+10
1.200E+01	8.345E+04	1.288E+07	6.653E+06	1.407E+07	3.449E+08	3.950E+10	3.484E+10
1.300E+01	8.176E+04	1.161E+07	6.437E+06	1.324E+07	3.190E+08	3.581E+10	3.470E+10
1.400E+01	7.913E+04	1.025E+07	6.436E+06	1.236E+07	2.926E+08	3.257E+10	3.426E+10
1.500E+01	7.590E+04	8.856E+06	6.491E+06	1.167E+07	2.722E+08	2.963E+10	3.392E+10
1.600E+01	7.294E+04	7.528E+06	6.567E+06	1.107E+07	2.460E+08	2.597E+10	3.347E+10
1.700E+01	6.805E+04	6.619E+06	6.589E+06	1.090E+07	2.347E+08	2.490E+10	3.290E+10
1.800E+01	6.497E+04	6.287E+06	6.542E+06	1.072E+07	2.223E+08	2.401E+10	3.233E+10
1.900E+01	6.260E+04	6.546E+06	6.455E+06	1.074E+07	2.242E+08	2.531E+10	3.161E+10
2.000E+01	6.189E+04	7.323E+06	6.353E+06	1.070E+07	2.212E+08	2.580E+10	3.110E+10
2.100E+01	6.065E+04	8.186E+06	6.301E+06	1.074E+07	2.226E+08	2.677E+10	3.031E+10
2.200E+01	6.037E+04	9.107E+06	6.261E+06	1.070E+07	2.214E+08	2.667E+10	2.966E+10
2.300E+01	5.724E+04	9.870E+06	6.246E+06	1.068E+07	2.096E+08	2.436E+10	2.905E+10
2.400E+01	5.506E+04	1.047E+07	6.235E+06	1.070E+07	2.114E+08	2.425E+10	2.847E+10
2.500E+01	5.414E+04	1.086E+07	6.228E+06	1.070E+07	2.053E+08	2.321E+10	2.798E+10
2.600E+01	5.194E+04	1.118E+07	6.179E+06	1.060E+07	2.089E+08	2.280E+10	2.741E+10
2.700E+01	5.033E+04	1.128E+07	6.165E+06	1.060E+07	2.143E+08	2.371E+10	2.701E+10
2.800E+01	4.853E+04	1.129E+07	6.155E+06	1.047E+07	2.153E+08	2.363E+10	2.647E+10
2.900E+01	4.792E+04	1.111E+07	6.134E+06	1.039E+07	2.105E+08	2.157E+10	2.602E+10
3.000E+01	4.845E+04	1.090E+07	6.050E+06	1.021E+07	2.128E+08	2.180E+10	2.554E+10
3.100E+01	4.836E+04	1.049E+07	5.999E+06	1.011E+07	2.220E+08	2.238E+10	2.515E+10
3.200E+01	4.813E+04	1.008E+07	5.914E+06	9.928E+06	2.233E+08	2.187E+10	2.474E+10
3.300E+01	4.786E+04	9.614E+06	5.870E+06	9.724E+06	2.237E+08	2.181E+10	2.439E+10
3.400E+01	4.714E+04	9.173E+06	5.795E+06	9.567E+06	2.266E+08	2.129E+10	2.398E+10
3.500E+01	4.637E+04	8.670E+06	5.785E+06	9.398E+06	2.364E+08	2.268E+10	2.379E+10
3.600E+01	4.546E+04	8.202E+06	5.787E+06	9.211E+06	2.466E+08	2.375E+10	2.336E+10
3.700E+01	4.563E+04	7.734E+06	5.771E+06	9.006E+06	2.511E+08	2.476E+10	2.300E+10
3.800E+01	4.371E+04	7.330E+06	5.736E+06	8.811E+06	2.519E+08	2.385E+10	2.264E+10
3.900E+01	4.264E+04	6.930E+06	5.785E+06	8.654E+06	2.529E+08	2.342E+10	2.242E+10
4.000E+01	4.151E+04	6.630E+06	5.811E+06	8.475E+06	2.482E+08	2.160E+10	2.215E+10
4.100E+01	4.041E+04	6.286E+06	5.865E+06	8.398E+06	2.488E+08	2.138E+10	2.185E+10
4.200E+01	3.921E+04	6.082E+06	5.912E+06	8.222E+06	2.587E+08	2.347E+10	2.160E+10
4.300E+01	3.865E+04	5.846E+06	5.903E+06	8.137E+06	2.561E+08	2.192E+10	2.129E+10
4.400E+01	3.851E+04	5.742E+06	5.863E+06	8.025E+06	2.607E+08	2.271E+10	2.102E+10
4.500E+01	3.744E+04	5.579E+06	5.869E+06	7.968E+06	2.671E+08	2.350E+10	2.092E+10
4.600E+01	3.735E+04	5.537E+06	5.903E+06	7.875E+06	2.799E+08	2.578E+10	2.083E+10
4.700E+01	3.641E+04	5.413E+06	5.917E+06	7.778E+06	2.786E+08	2.521E+10	2.050E+10

1.280E+02	3.248E+04	5.727E+06	5.879E+06	7.668E+06	2.898E+08	2.471E+10	2.415E+10
1.290E+02	3.235E+04	5.716E+06	5.871E+06	7.686E+06	2.848E+08	2.306E+10	2.423E+10
1.300E+02	3.232E+04	5.729E+06	5.878E+06	7.719E+06	2.871E+08	2.420E+10	2.420E+10
1.310E+02	3.273E+04	5.724E+06	5.919E+06	7.723E+06	2.888E+08	2.404E+10	2.436E+10
1.320E+02	3.167E+04	5.710E+06	5.930E+06	7.790E+06	2.929E+08	2.500E+10	2.443E+10
1.330E+02	3.208E+04	5.702E+06	5.977E+06	7.753E+06	2.917E+08	2.511E+10	2.452E+10
1.340E+02	3.271E+04	5.760E+06	5.898E+06	7.718E+06	2.939E+08	2.498E+10	2.474E+10
1.350E+02	3.247E+04	5.692E+06	5.969E+06	7.800E+06	2.915E+08	2.425E+10	2.464E+10
1.360E+02	3.220E+04	5.777E+06	5.979E+06	7.824E+06	2.848E+08	2.365E+10	2.470E+10
1.370E+02	3.219E+04	5.734E+06	5.982E+06	7.829E+06	2.897E+08	2.467E+10	2.470E+10
1.380E+02	3.187E+04	5.773E+06	5.982E+06	7.894E+06	2.953E+08	2.599E+10	2.474E+10
1.390E+02	3.273E+04	5.750E+06	6.015E+06	7.880E+06	2.964E+08	2.556E+10	2.491E+10
1.400E+02	3.194E+04	5.771E+06	5.925E+06	7.819E+06	2.951E+08	2.584E+10	2.490E+10
1.410E+02	3.236E+04	5.798E+06	5.920E+06	7.779E+06	2.959E+08	2.551E+10	2.497E+10
1.420E+02	3.240E+04	5.804E+06	5.938E+06	7.856E+06	2.874E+08	2.357E+10	2.501E+10
1.430E+02	3.133E+04	5.793E+06	5.975E+06	7.868E+06	2.903E+08	2.410E+10	2.505E+10
1.440E+02	3.207E+04	5.837E+06	5.956E+06	7.860E+06	2.863E+08	2.375E+10	2.508E+10
1.450E+02	3.188E+04	5.799E+06	5.986E+06	7.912E+06	2.904E+08	2.460E+10	2.528E+10
1.460E+02	3.237E+04	5.824E+06	5.947E+06	7.891E+06	2.979E+08	2.579E+10	2.517E+10
1.470E+02	3.245E+04	5.788E+06	6.004E+06	7.915E+06	2.997E+08	2.601E+10	2.525E+10
1.480E+02	3.162E+04	5.853E+06	6.034E+06	7.912E+06	2.927E+08	2.476E+10	2.533E+10
1.490E+02	3.204E+04	5.792E+06	6.074E+06	7.987E+06	2.935E+08	2.442E+10	2.539E+10
1.500E+02	3.224E+04	5.894E+06	6.083E+06	8.025E+06	2.863E+08	2.343E+10	2.541E+10
1.510E+02	3.245E+04	5.897E+06	6.060E+06	7.998E+06	2.856E+08	2.388E+10	2.540E+10
1.520E+02	3.129E+04	5.931E+06	6.023E+06	7.962E+06	2.892E+08	2.313E+10	2.552E+10
1.530E+02	3.170E+04	5.872E+06	5.988E+06	8.030E+06	2.839E+08	2.336E+10	2.556E+10
1.540E+02	3.256E+04	5.903E+06	6.024E+06	7.978E+06	2.923E+08	2.505E+10	2.557E+10
1.550E+02	3.183E+04	5.893E+06	6.039E+06	8.053E+06	2.937E+08	2.523E+10	2.553E+10
1.560E+02	3.274E+04	5.918E+06	6.058E+06	7.999E+06	2.943E+08	2.499E+10	2.558E+10
1.570E+02	3.202E+04	5.894E+06	6.070E+06	8.070E+06	2.942E+08	2.488E+10	2.556E+10
1.580E+02	3.300E+04	5.963E+06	6.032E+06	8.083E+06	2.903E+08	2.422E+10	2.575E+10
1.590E+02	3.205E+04	5.915E+06	6.082E+06	8.128E+06	2.941E+08	2.456E+10	2.569E+10
1.600E+02	3.259E+04	5.951E+06	6.108E+06	8.116E+06	2.873E+08	2.347E+10	2.585E+10
1.610E+02	3.144E+04	5.880E+06	6.114E+06	8.117E+06	2.886E+08	2.364E+10	2.584E+10
1.620E+02	3.198E+04	5.945E+06	6.119E+06	8.162E+06	2.825E+08	2.297E+10	2.578E+10
1.630E+02	3.225E+04	5.929E+06	6.136E+06	8.172E+06	2.931E+08	2.523E+10	2.587E+10
1.640E+02	3.238E+04	5.994E+06	6.055E+06	8.141E+06	2.947E+08	2.507E+10	2.585E+10
1.650E+02	3.192E+04	5.979E+06	6.062E+06	8.213E+06	2.913E+08	2.415E+10	2.591E+10
1.660E+02	3.275E+04	6.012E+06	6.069E+06	8.155E+06	2.867E+08	2.364E+10	2.600E+10
1.670E+02	3.227E+04	5.949E+06	6.129E+06	8.229E+06	2.997E+08	2.597E+10	2.603E+10

1.680E+02	3.231E+04	5.970E+06	6.133E+06	8.162E+06	2.941E+08	2.515E+10	2.606E+10
1.690E+02	3.219E+04	5.958E+06	6.175E+06	8.212E+06	2.916E+08	2.436E+10	2.607E+10
1.700E+02	3.180E+04	6.005E+06	6.117E+06	8.217E+06	2.911E+08	2.439E+10	2.621E+10
1.710E+02	3.199E+04	5.990E+06	6.160E+06	8.232E+06	2.938E+08	2.493E+10	2.621E+10
1.720E+02	3.206E+04	6.034E+06	6.152E+06	8.307E+06	2.879E+08	2.390E+10	2.616E+10
1.730E+02	3.234E+04	6.026E+06	6.195E+06	8.307E+06	2.861E+08	2.341E+10	2.620E+10
1.740E+02	3.231E+04	6.021E+06	6.189E+06	8.271E+06	2.926E+08	2.455E+10	2.619E+10
1.750E+02	3.208E+04	5.996E+06	6.183E+06	8.329E+06	2.915E+08	2.393E+10	2.628E+10
1.760E+02	3.193E+04	6.071E+06	6.125E+06	8.259E+06	2.909E+08	2.455E+10	2.628E+10
1.770E+02	3.235E+04	6.038E+06	6.128E+06	8.291E+06	2.934E+08	2.466E+10	2.622E+10
1.780E+02	3.272E+04	6.095E+06	6.115E+06	8.309E+06	3.010E+08	2.607E+10	2.635E+10
1.790E+02	3.185E+04	6.088E+06	6.144E+06	8.323E+06	2.930E+08	2.430E+10	2.630E+10
1.800E+02	3.185E+04	6.088E+06	6.144E+06	8.323E+06	2.930E+08	2.430E+10	2.630E+10
VARIABLE	P1	U1	V1	H1	KE	EP	H1
MINVAL=	1.035E+01	1.549E+01	1.554E+01	1.578E+01	1.914E+01	2.378E+01	2.363E+01
MAXVAL=	1.359E+01	1.654E+01	1.651E+01	1.698E+01	2.108E+01	2.614E+01	2.476E+01

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1.00 HE.UU.....+.........+.........+.........+.........+.........+.........+.........+.........+.........+
     .E U                                                                                                    .
     .K  U                                                                                                   .
     .HH                                                                                                     .
     K H  U                                                                                                  .
0.90 + U                                                                                                     +
     .H                                                                                                      .
     V KH                                                                                                    .
     . E   U                                                                                                 .
     E                                                                                                       .
0.80 +                                                                                                       +
     .H H                                                                                                    .
     .P                                                                                                      .
     . U   U                                                                                                 .
     . HVH         UU                                                                                        .
0.70 + V          U U                                                                                        +
     .            U  U                                                                                       .
     . HVH                                                                                                   .
     .UE         U   U                                                                                       .
     .  H H U                                                                                                .
0.60 + VH             U                                                                                      +
     .  KHHH     U                                                                                           .
     .   V HH         U                                                                                      .
```
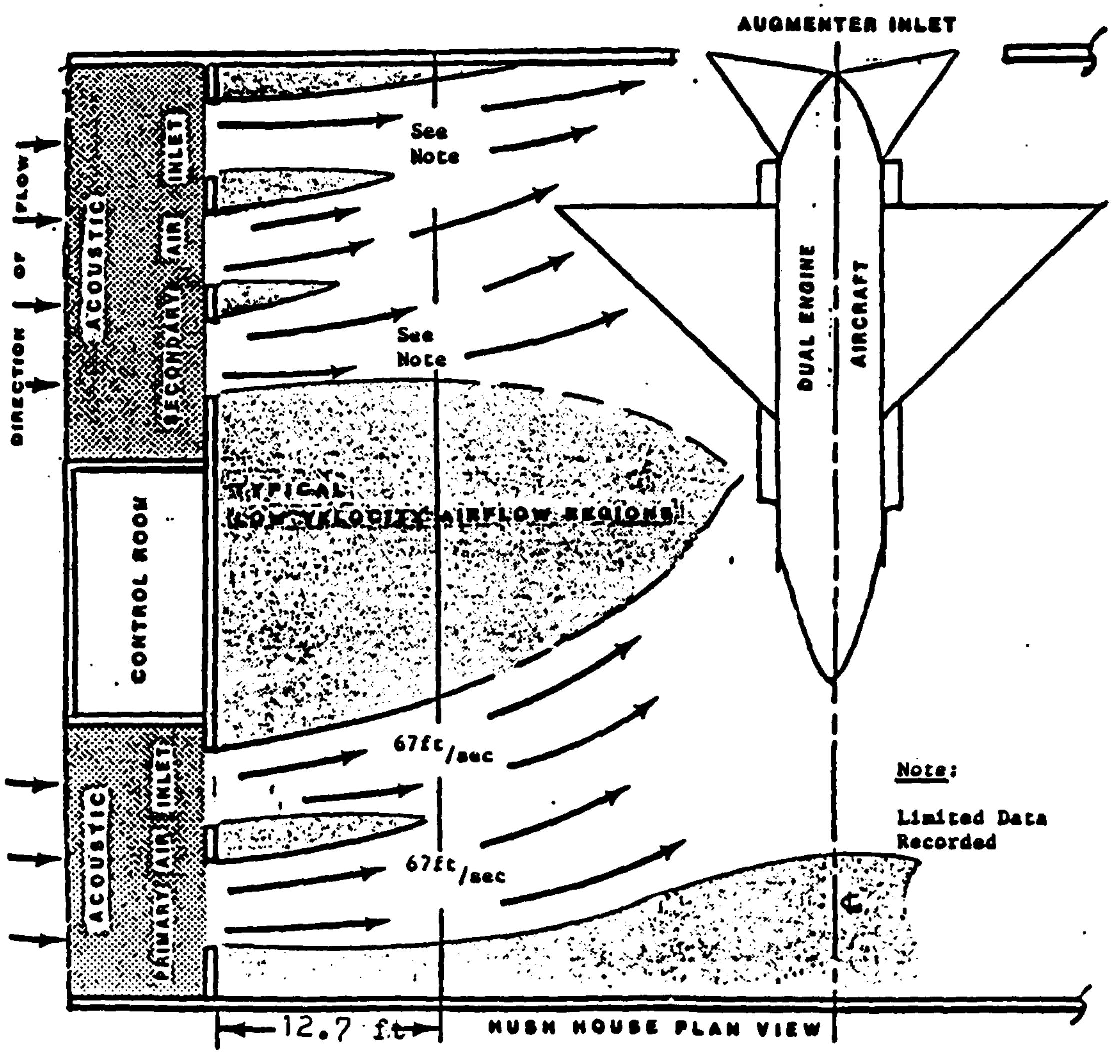

```
     .  K   HH                                                                                                     .
     . PE  H H         U                                                                                           .
0.50 UU        H U                                                                                                 +
     .V EK  U  H                                                                                                   .
     .   E  H          U                                                                                           .
     . P        H                                                                                                  .
     .   K      H                                                                                                  .
0.40 +   E  H   UH     U                                                                                           +
     .  P         H                                                                                                .
     .      H     H     U                                                                                          .
     .  P    HHHHHH                                                                                                .
     .    E  U    HHH                                                                                      HHHHHHHHH
0.30 +   PPP   U     H   U                                                                        HHHHHHHHHH       +
     .    V P        HH                                                                     HHHHHHHH               .
     .     E P        H                                                                HHHHH                       .
     .       P         HH U                                                        HHHHH                           .
     .     E  PP        H                                                      HHHH                                .
0.20 +       U UP        HU           K                       K  HHH   K             K          K    K+
     .     VE     P      HH    K  KKKKKKK K KKKKKKK KKKKK KKKKKHHHKKKKKKK KKKKKKKKKKK KKKKKKKKKKKKKKKKKKK
     .      VVV   P       HH  KK K       KKKK      KK    KK   HHH  KK   K KK K   K         K    K       .
     .     VE  V   PPPP   HHHK  K                             HHH                                       .
     .          VVV    PPP KKHH         UUUU               HHH                                HHHHHHHHHHH
0.10 +       K  E VVV   KKKKHHHH      UUU  UUU         HHH       E        E                HHHHHHHVUUVVVVVVVV
     .       E E     V  K PPU EHH EEEUUE       EUE    HH        E       E         H HEEEHHEHVVVEVVUEVVE     E.
     .       EE  E    VK E VVVVEHHHVEEEEE E EE EEEHHEEEEE EE EEEEEEEEHEHEHEEEEEEEEEUVEEVEE E EE  EE EE EEEE
     .        KKK EEEKKVEEEE EUPPHHHVVEPEPEEEE PHH EEEVVEEVVEHHHHEHHHVHEVEE E   E   EE  EEE   EE E   EE  .
     .           KEKKEE EV  EEU EUUHHHHHVEVEVHHHVVPEHHHHHHHHPHPPPEEPP PP  PPP PP PPP P  PP PPP PP   P PP.
0.00 +.........+..K.EE.E.+EE...U.U.+...HHHHHHHHHHHHHHHH.+..........+....P..PPP..PPPP.PPP.PPPPPPPPP.PPPPPPPPP
     0         .1        .2        .3        .4        .5        .6        .7        .8        .9       1.0
THE ABSCISSA IS      ISWP.  MIN= 2.00E+00 MAX= 1.80E+02
************************************************************

DATA FOR RE-STARTS AND PLOTTING SAVED ON DF09
RUN NO.   1  ENDED AT ISWEEP=   180  AND ISTEP=     1

************************************************************
SATLIT RUN NUMBER =   1
MACHINE-CLOCK TIME OF RUN =        0 SECONDS.
TIME/(VARIABLES*CELLS*TSTEPS*SWEEPS*ITS) = 0.000E+00
************************************************************


NORMAL STOP REACHED IN PROGRAM
```

APPENDIX C

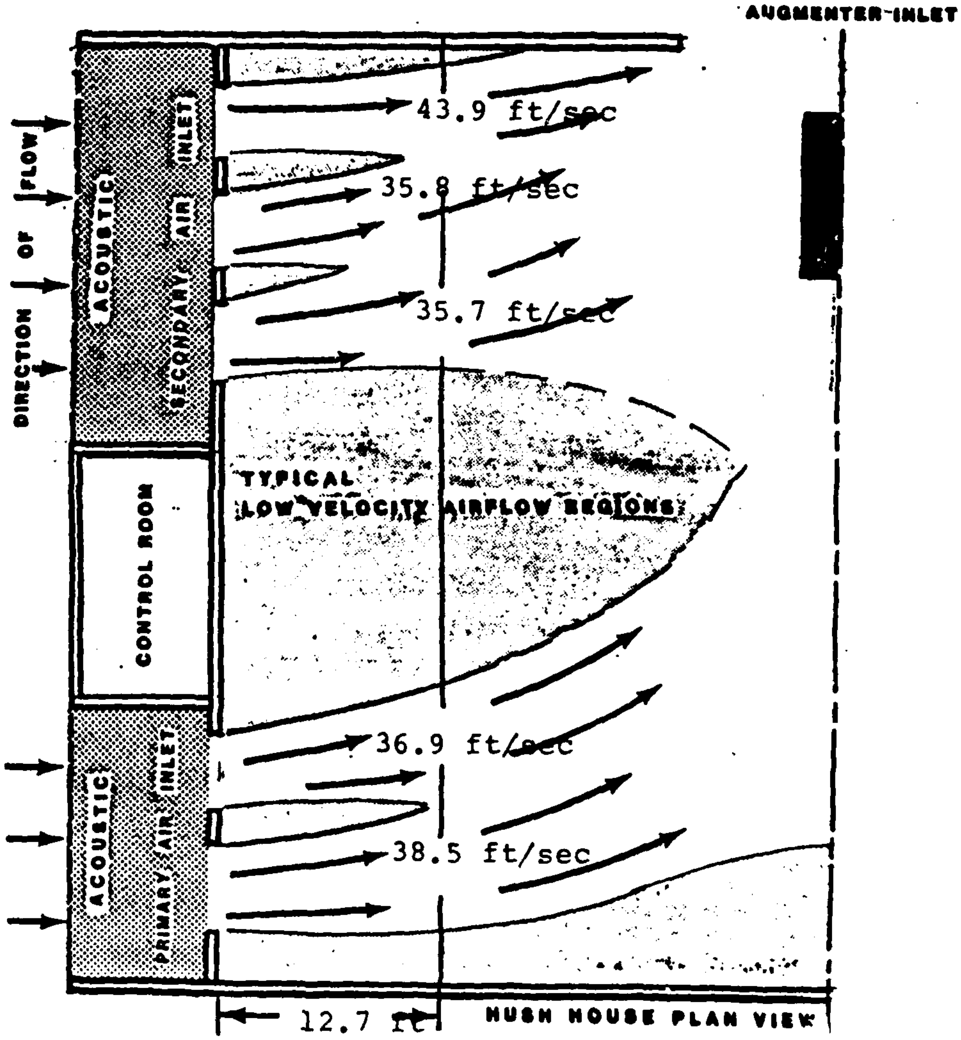
AIRFLOW CHARACTERIZATION SHEET

TEST PROGRAM: Testing of Navy Aircraft in Arched Structure Hush House
LOCATION: Kelly A.F.B
DATE: 9 November 1982
AIRCRAFT: F-4N
ENGINE: J-79-GE-8
CELL DEPRESSION (in. wg.): 1.7
EVENT: 5
CONDITIONS: Port Engine - A/B Power, Starboard Engine - Idle Power



AIRFLOW CHARACTERIZATION SHEET

TEST PROGRAM: Thesis
LOCATION: Naval Air Station, Jacksonville, Florida
DATE: N/A
AIRCRAFT: N/A
ENGINE: J-79-GE-8 CELL DEPRESSION (in. wg.): N/A
EVENT: N/A
CONDITIONS: Single Engine with A/B @ centerline



APPENDIX D

EXHAUST FLOW DATA SHEET

TEST PROGRAM: Testing of Navy Aircraft in Arched Structure Hush House

LOCATION: Kelly A.F.B., San Antonio, Texas

DATE: 9 November 1982

AIRCRAFT: F-4-N

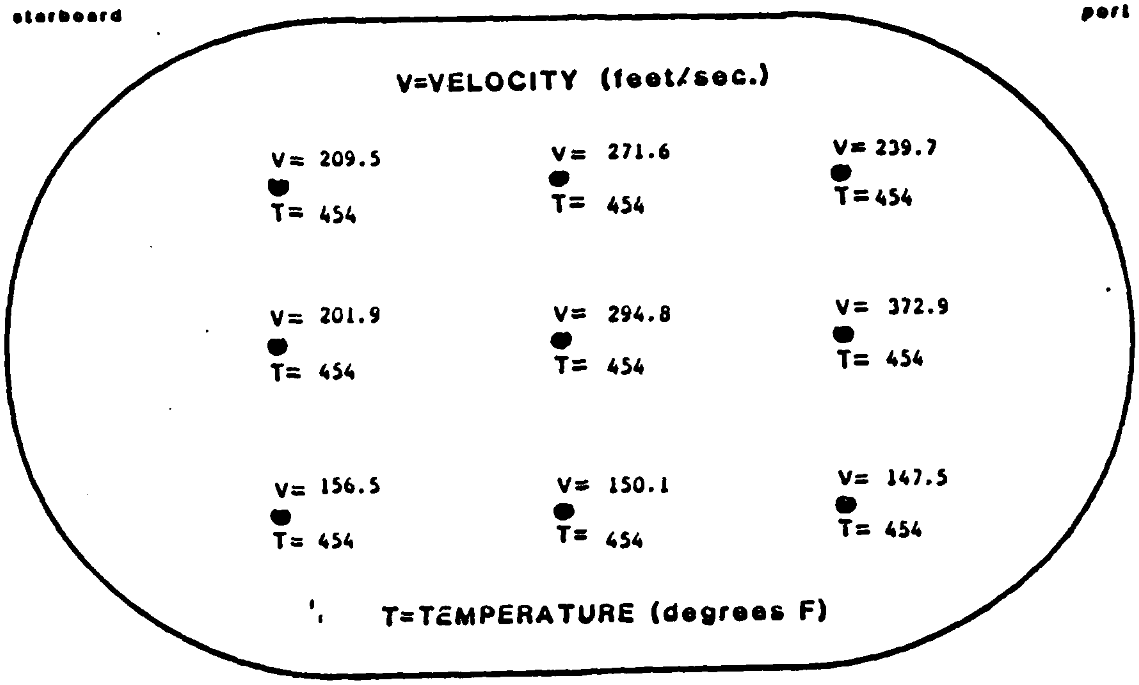
ENGINE: J-79-GE-8

EVENT: 5

CONDITIONS: Port Engine - A/B, Starboard Engine - Idle Power

AUGMENTER TUBE

starboard port



TOTAL MASS FLOW (lbm./sec.)= 2067

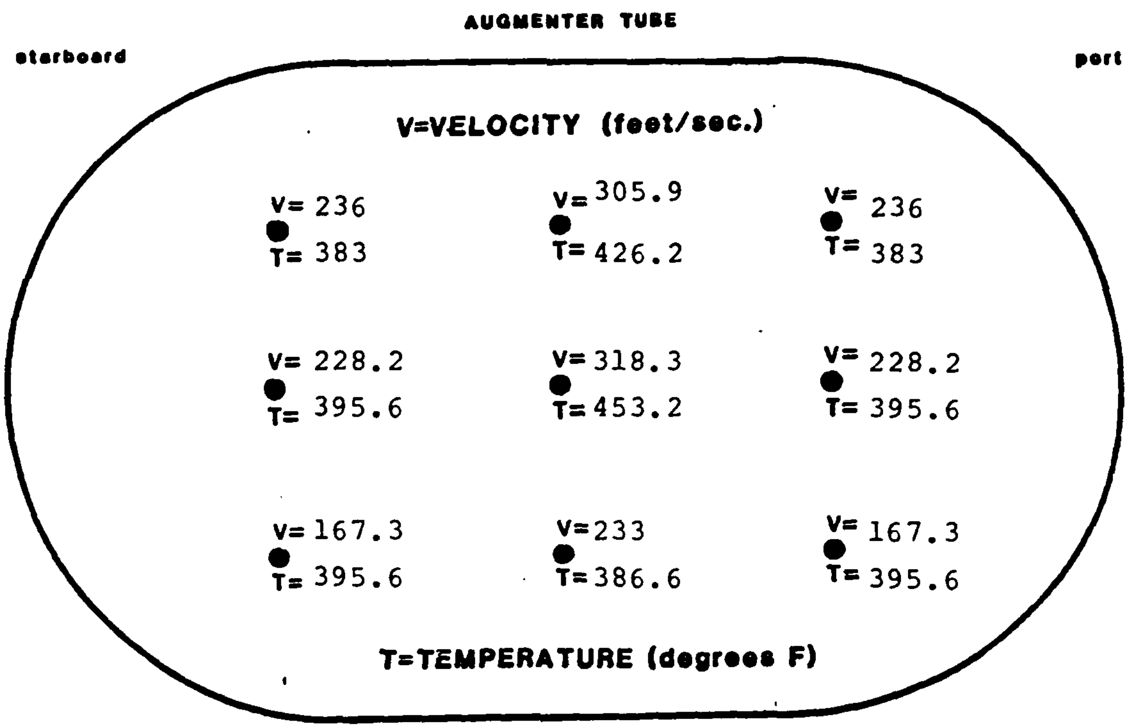
Vavg= 227.2

Tavg= 454

AUGMENTATION RATIO= 8.3

EXHAUST FLOW DATA SHEET

TEST PROGRAM: Thesis
LOCATION: Naval Air Station, Jacksonville, Florida
DATE: N/A
AIRCRAFT: N/A
ENGINE: J-79-GE-8
EVENT: N/A
CONDITIONS: Single Engine with A/B @ centerline



FLOW (lbm./sec.)= 2373

Vavg= 235.5

AUGMENTATION RATIO= 10.6

Tavg= 401.6

APPENDIX E
DATA TRANSFER BY TAPE

The IBM 3033 main-frame presently does not have "PHOTON" graphics capabilities. In order to produce various visual plots that enhance the interpretation of tabulated data, the "DF09" and "DF12" files must be properly formatted and then transferred to tape (for portability) allowing use of "PHOTON" on another computer which is "PHOTON" capable.

The computer center will provide a non-labelled tape for data transfer. The operator, when queried by the programs below, will mount the tape allowing the "DF09" and "DF12" files to be transferred to the tape.

To prepare the files for transfer to tape a copy is made to ensure that the original data file is safe. Program "FORM09 JCL" properly formats and then writes the "DF09" file to a new file called "DF09C". Program "FORM12 JCL" properly formats and then writes the "DF12" file to a new file called "DF12C". The data sets "DF09C" and "DF12C" which are produced using MVSHELP must be at least as large as the original "DF09" and "DF12" data sets and created before running "FORM12 JCL" or "FORM09 JCL".

With the two files now properly formatted the file "DSTP JCL" is used to transfer the designated file to tape. In the following example the "DF09C" file is transferred as the

second file to the tape called "NICOLA". File "TSCAN JCL" then scans the tape to ensure the program was actually transferred to the tape.

Two other files, "TAP JCL" and "DUMP JCL", can dump a file from tape to the virtual machine and return the first block of the tape file respectively. With the files on tape and checked the tape can be dismounted by the operator at the computer center and transported to a "PHOTON" capable system in the "formatted" form.

The various files referenced are now listed.

FILE: DSTP JCL A1

```
//DSTP JOB (1541,9999),'ERIC',CLASS=E
//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD DISP=SHR,DSN=MSS.S1541.PHOENICS.DF09C
//SYSUT2 DD UNIT=3400-6,VOL=SER=NICOLA,DISP=(NEW,PASS),
//         LABEL=(2,NL,,OUT),
//         DCB=(RECFM=FB,LRECL=80,BLKSIZE=800,DEN=3,OPTCD=Q)
//
```

FILE: TAP JCL A1

```
//TAP JOB (1541,9999),'TAP JCL',CLASS=E
//*MAIN CARDS=(50)
//  EXEC PGM=IEBGENER
//SYSPRINT DD SYSOUT=A
//SYSIN DD DUMMY
//SYSUT1 DD UNIT=3400-6,VOL=SER=NICOLA,DISP=(OLD,PASS),
//      LABEL=(2,NL,,IN),
//      DCB=(RECFM=FB,LRECL=80,BLKSIZE=800,OPTCD=Q)
//SYSUT2 DD SYSOUT=B,DCB=BLKSIZE=80
//
```

FILE: DUMP JCL A1

```
//DUMP JOB (1541,9999),'DUMP',CLASS=E
// EXEC TAPE,VOLIN=NICOLA
//SYSIN DD *
DMPREC(10,272,1),SKPFIL(10,1),XECUTE(999)
/*
//
```

FILE: TSCAN JCL A1

```
//GSCAN JOB (1541,9999),'NICOLA',CLASS=E
//  EXEC TSCAN,VOLIN=NICOLA
//
```

FILE: FORM09   JCL   A1

```
//FORM09 JOB (1541,9999),'CHAM',CLASS=B
//*MAIN LINES=(20)
// EXEC FORTVCLG
//FORT.SYSIN DD *
C     PROGRAM FORM09
C
C  Increase PARAMETER settings if more variables or a larger grid
C  is required.
C
      PARAMETER(NPHIP=80)
C NB NXYMAX must be >= NZ and NX*NY
      PARAMETER(NXYMAX=20000)
      CHARACTER*4 NAME(NPHIP),MESS(10)
      CHARACTER*15 FILIN,FILOUT
      CHARACTER*1 ANS
      CHARACTER*10 ACCESS
      LOGICAL LBUF(10),STORE(NPHIP),DEBUG
      DIMENSION RBUF(NXYMAX),IBUF(10)
C
  100 FORMAT(1X,7I10)
  101 FORMAT(6(1PE13.6))
  102 FORMAT(1X,79L1)
  103 FORMAT(1X,19A4)
C
C  Reset DEBUG=.TRUE. to get error messages..
      DEBUG=.TRUE.
C
C  Set Logical Units...
      LUIN=9
      LUOUT=10
      LUBUG=6
C
C  Set File Names...
C  Name of unformatted restart file
C     WRITE(6,*) ' RESTART FILENAME?'
C     READ(5,'(A)') FILIN
C  Name of formatted restart file
C     WRITE(6,*) ' FORMATTED FILENAME?'
C     READ(5,'(A)') FILOUT
C
C  Direct access or sequential?
C     WRITE(6,*) ' DIRECT ACCESS (PHIDA) FILE?  Y/N'
C     READ(5,'(A1)') ANS
C     IF(ANS.EQ.'Y'.OR.ANS.EQ.'Y') THEN
C Version 1.4 default
C     ACCESS='DIRECT'
C     LENREC=256
C     ELSE
C Version 1.3
      ACCESS='SEQUENTIAL'
```

FILE: FORM09   JCL   A1

```
      LENREC=100
C     ENDIF
C     WRITE(6,*) ' DEFAULT LENREC? (100 V1.3, 256 V1.4) - Y/N'
C     READ(5,'(A)') ANS
C     IF(ANS.NE.'Y'.AND.ANS.NE.'Y') THEN
C     WRITE(6,*) ' LENREC? (WORDS NOT BYTES)'
C     READ(5,'(I)') LENREC
C     ENDIF
C  NBYTES is the number of bytes per single precision word.
      NBYTES=4
C Record length in bytes.
      LREC=NBYTES*LENREC
C
C  OPEN input file:
      OPEN(UNIT=9,FORM='UNFORMATTED',STATUS='OLD',
     1 ACCESS=ACCESS,IOSTAT=IERR,ERR=90)
          IF(IERR.NE.0) GO TO 90
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=1) (MESS(I),I=1,10)
      ELSE
      READ(LUIN) (MESS(I),I=1,10)
      ENDIF
           IF(DEBUG) WRITE(LUBUG,*) MESS
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=2) (LBUF(I),I=1,4)
      ELSE
      READ(LUIN) (LBUF(I),I=1,4)
      ENDIF
           IF(DEBUG) WRITE(LUBUG,*) (LBUF(I),I=1,4)
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=3) NX,NY,NZ,NPHI,(IBUF(I),I=1,6),LENREC
      ELSE
      READ(LUIN) NX,NY,NZ,NPHI,(IBUF(I),I=1,6),LENREC
      ENDIF
      NXNY=NX*NY
           IF(NXNY.GT.NXYMAX) GOTO 92
           IF(NPHI.GT.NPHIP) GO TO 93
           IF(DEBUG) WRITE(LUBUG,*) NX,NY,NZ
C
C  OPEN output file: FORMATTED, SEQUENTIAL and of FIXED RECORD LENGTH.
      OPEN(UNIT=10,FORM='FORMATTED',STATUS='OLD',
     1 ACCESS='SEQUENTIAL',IOSTAT=IERR,ERR=91)
          IF(IERR.NE.0) GO TO 91
      WRITE(LUOUT,103) (MESS(I),I=1,10)
      WRITE(LUOUT,102) (LBUF(I),I=1,4)
      WRITE(LUOUT,100) NX,NY,NZ,NPHI,(IBUF(I),I=1,6),LENREC
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=4) RINNER
      ELSE
      READ(LUIN) RINNER
```

```
      ENDIF
      WRITE(LUOUT,101) RINNER
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=5) (NAME(I),I=1,NPHI)
      ELSE
      READ(LUIN) (NAME(I),I=1,NPHI)
      ENDIF
C Set C36... names for variables 51 to NPHI for version 1.4, to avoid
C control characters etc| (Unless already stored)
      IF(ACCESS.EQ.'DIRECT'.AND.NPHI.GT.50) THEN
      READ(LUIN,REC=10) (STORE(I),I=1,NPHI)
      DO 6 I=51,NPHI
      J=I-15
       IF(.NOT.STORE(I)) THEN
        IF(I.LT.100) THEN
        WRITE(NAME(I),'(''C'',I2,'' '')') J
        ELSE
        WRITE(NAME(I),'(''C'',I3)') J
        ENDIF
       ENDIF
    6 CONTINUE
      ENDIF
      WRITE(LUOUT,103) (NAME(I),I=1,NPHI)
          IF(DEBUG) WRITE(LUBUG,*) (NAME(I),I=1,NPHI)
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=6) (RBUF(I),I=1,NX)
      ELSE
      READ(LUIN) (RBUF(I),I=1,NX)
      ENDIF
      WRITE(LUOUT,101) (RBUF(I),I=1,NX)
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=7) (RBUF(I),I=1,NY)
      ELSE
      READ(LUIN) (RBUF(I),I=1,NY)
      ENDIF
      WRITE(LUOUT,101) (RBUF(I),I=1,NY)
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=8) (RBUF(I),I=1,NZ)
      ELSE
      READ(LUIN) (RBUF(I),I=1,NZ)
      ENDIF
      WRITE(LUOUT,101) (RBUF(I),I=1,NZ)
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=9) (RBUF(I),I=1,NZ)
      ELSE
      READ(LUIN) (RBUF(I),I=1,NZ)
      ENDIF
      WRITE(LUOUT,101) (RBUF(I),I=1,NZ)
      IF(ACCESS.EQ.'DIRECT') THEN
      READ(LUIN,REC=10) (STORE(I),I=1,NPHI)
```

FILE: FORM09 JCL A1

```
      ELSE
      READ(LUIN) (STORE(I),I=1,NPHI)
      ENDIF
      WRITE(LUOUT,102) (STORE(I),I=1,NPHI)
           IF(DEBUG) WRITE(LUBUG,102) (STORE(I),I=1,NPHI)
      NVAR=0
      DO 5 I=1,NPHI
      IF(STORE(I)) NVAR=NVAR+1
    5 CONTINUE
      IREC=10
      DO 10 K=1,NZ
      DO 20 I=1,NVAR
      IF(ACCESS.EQ.'DIRECT') THEN
      IREC=IREC+1
      NVREC=NXNY/LENREC
      IF(MOD(NXNY,LENREC).NE.0) NVREC=NVREC+1
      DO 30 IVREC=1,NVREC
      JF=(IVREC-1)*LENREC + 1
      JL=IVREC*LENREC
      JL=MIN0(JL,NXNY)
      READ(LUIN,REC=IREC) (RBUF(J),J=JF,JL)
   30 CONTINUE
      ELSE
      READ(LUIN) (RBUF(J),J=1,NXNY)
      ENDIF
      WRITE(LUOUT,101) (RBUF(J),J=1,NXNY)
   20 CONTINUE
   10 CONTINUE
           IF(DEBUG) WRITE(LUBUG,1900)
 1900 FORMAT(1X,' NORMAL STOP IN PROGRAM')
      GO TO 999
C Error trapping...
   90      IF(DEBUG) WRITE(LUBUG,1901)
 1901 FORMAT(1X,' ERROR IN OPENING INPUT FILE')
      GO TO 999
   91      IF(DEBUG) WRITE(LUBUG,1911)
 1911 FORMAT(1X,'ERROR IN OPENING OUTPUT FILE')
      GO TO 999
   92      IF(NXNY.GT.NXYMAX) WRITE(LUBUG,1921)
           IF(NZ.GT.NXYMAX) WRITE(LUBUG,1923)
 1921 FORMAT(1X,'SETTING OF NX*NY TOO LARGE; RESET IN FORM09 AND '
     1,/,1X,'RE-CREATE THE LOAD MODULE')
 1923 FORMAT(1X,'SETTING OF NZ TOO LARGE; RESET IN FORM09 AND '
     1,/,1X,'RE-CREATE THE LOAD MODULE')
      GO TO 999
   93      WRITE(LUBUG,193)
  193 FORMAT(1X,'SETTING OF NPHI TOO LARGE; RESET IN FORM09 AND '
     1,/,1X,'RE-CREATE THE LOAD MODULE')
  999 CONTINUE
C  CLOSE files ...
```

FILE: FORM09 JCL A1

```
      CLOSE(LUIN,STATUS='KEEP')
      CLOSE(LUOUT,STATUS='KEEP')
      STOP
      END
//GO.FT09F001 DD DSN=MSS.S1541.PHOENICS.DF09,DISP=(OLD)
//GO.FT10F001 DD DSN=MSS.S1541.PHOENICS.DF09C,DISP=(OLD)
/*
//
```

FILE: FORM12 JCL A1

```
//FORM12 JOB (1541,9999),'CHAM',CLASS=B
//*MAIN LINES=(20)
// EXEC FORTVCLG
//FORT.SYSIN DD *
C File name: FORM12  last amended 15 October 1986
C     PROGRAM FORM12
C--------Program to rewrite a DF12 file into a formatted READCO file.
C  (JPE & JFD )
C
C Reset NXY1P if larger grid required..
      PARAMETER(NXY1P=10000)
      DIMENSION AREC(NXY1P)
C Reset fixed record length of DF12 file if required....
      CHARACTER*30 FILIN,FILOUT
      LOGICAL DEBUG
      INTEGER SECTOR
      DATA LENREC/100/
C
  100 FORMAT(3I5)
  101 FORMAT(5(1PE13.6))
C
C  SECTOR represents the largest record length that can be OPENed.
      SECTOR=65536
C  NBYTES is the number of bytes per single precision word.
      NBYTES=4
      LREC=MIN0(NBYTES*LENREC,SECTOR-NBYTES)
      IBLK=LREC+NBYTES
C
C  Set Logical Units...
      LUIN=12
      LUOUT=13
      LUBUG=6
C  Reset DEBUG if error messages required..
      DEBUG=.TRUE.
C  Set file names
C     FILIN='DF12                          '
C     FILOUT='DF12FORM                      '
C
C OPEN input file: DIRECT ACCESS, UNFORMATTED and of FIXED
C RECORD LENGTH.
C
      OPEN(UNIT=12,FORM='UNFORMATTED',STATUS='OLD',
     1 ACCESS='DIRECT',RECL=LREC,
     1 IOSTAT=IERR,ERR=90)
          IF(IERR.NE.0) GO TO 90
C
      READ(LUIN,REC=1) NXP1,NYP1,NZP1
      NXY1=NXP1*NYP1
         IF(NXY1.GT.NXY1P) GO TO 92
      NREC=NXY1/LENREC
```

FILE: FORM12 JCL A1

```
      ISHORT=NXY1-LENREC*NREC
         IF(ISHORT.GT.0) NREC=NREC+1
         IF(ISHORT.EQ.0) ISHORT=LENREC
         IF(DEBUG)  WRITE(LUBUG,*) NXP1,NYP1,NZP1,NXY1,NREC,ISHORT
C
C  OPEN output file: FORMATTED, SEQUENTIAL and of FIXED RECORD LENGTH.
C
      OPEN(UNIT=13,FORM='FORMATTED',STATUS='OLD',
     1 ACCESS='SEQUENTIAL',IOSTAT=IERR,ERR=91)
         IF(IERR.NE.0) GO TO 91
      WRITE(LUOUT,100)NXP1,NYP1,NZP1
      NR=1
        DO 5 K=1,NZP1
        DO 6 IC=1,3
      IMAX=LENREC
        DO 7 JR=1,NREC
          IF(JR.EQ.NREC) IMAX=ISHORT
      NR=NR+1
      NRA=(JR-1)*LENREC
      READ(LUIN,REC=NR) (AREC(NRA+I),I=1,IMAX)
    7   CONTINUE
C      Write data to output file
      WRITE(LUOUT,101)(AREC(II),II=1,NXY1)
    6   CONTINUE
    5   CONTINUE
            IF(DEBUG) WRITE(LUBUG,1900)
 1900 FORMAT(1X,'NORMAL STOP IN PROGRAM')
      GO TO 999
C Error trapping...
   90       IF(DEBUG) WRITE(LUBUG,1901)
 1901 FORMAT(1X,'ERROR IN OPENING INPUT FILE')
      GO TO 999
   91       IF(DEBUG) WRITE(LUBUG,1911)
 1911 FORMAT(1X,'ERROR IN OPENING OUTPUT FILE')
      GO TO 999
   92       IF(DEBUG) WRITE(LUBUG,1921)
 1921 FORMAT(1X,'GRID TOO LARGE; RESET NXY1P AND RE-CREATE',
     1 /,1X,'LOAD MODULE')
  999 CONTINUE
C  CLOSE files ...
      CLOSE(LUIN,STATUS='KEEP')
      CLOSE(LUOUT,STATUS='KEEP')
      STOP
      END
//GO.FT12F001 DD DSN=MSS.S1541.PHOENICS.DF12,DISP=(OLD)
//GO.FT13F001 DD DSN=MSS.S1541.PHOENICS.DF12C,DISP=(OLD)
/*
//
```

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